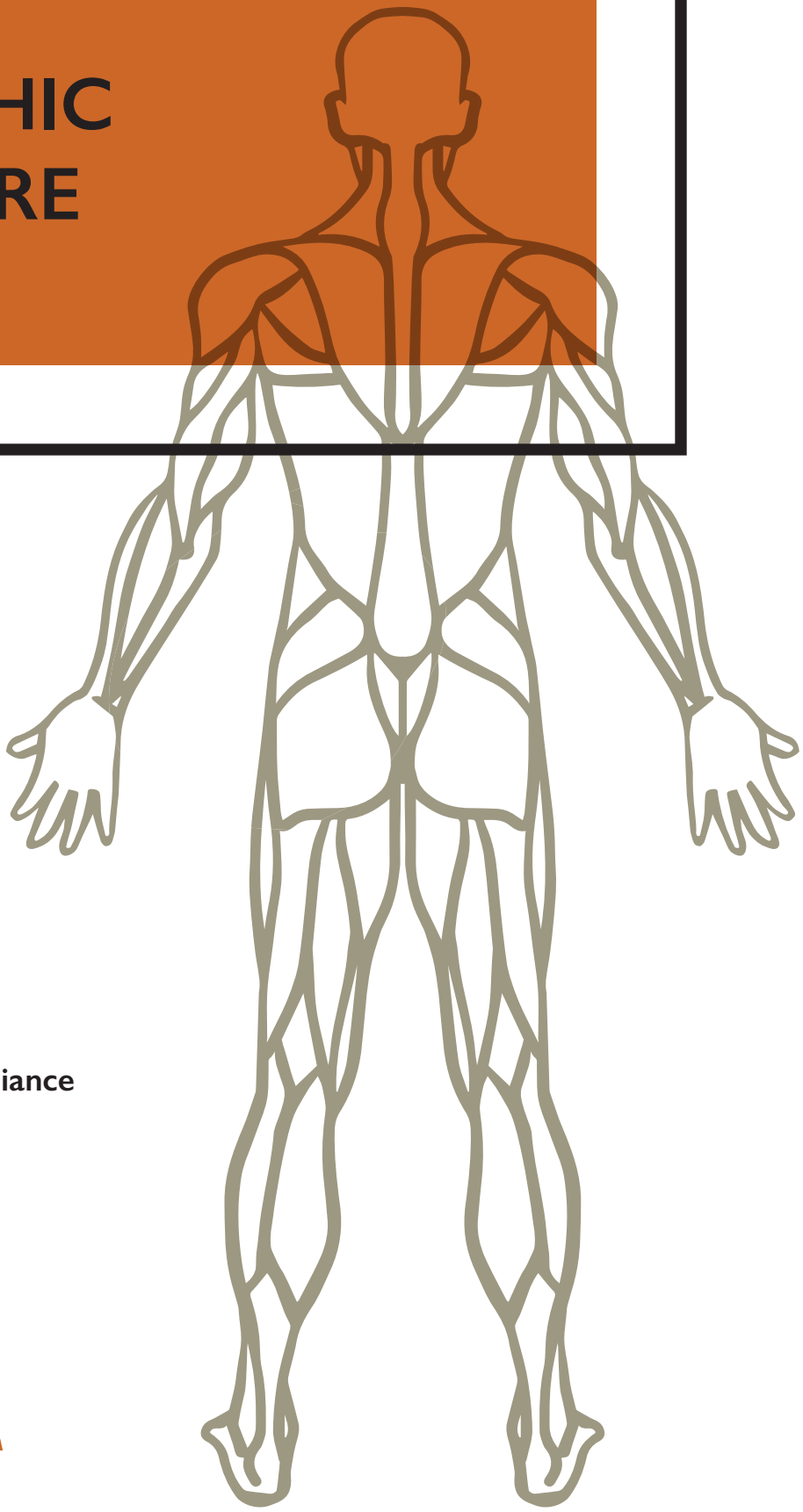
OSTEOPATHIC HEALTHCARE



Global review of osteopathic medicine and osteopathy 2020

Osteopathic International Alliance

OIA™

Foreword

This report on the status of the global osteopathic profession in 2020 was completed as a part of the Osteopathic International Alliance's 2018-2020 Collaborative Plan with the World Health Organization (WHO). As a non-State actor in official relations with the WHO since February 2018, the OIA continues to promote and document the commitment of the osteopathic profession to providing quality healthcare to patients across the globe.

This survey provides a current view of the profession and its growth since the last global survey in 2013 and demonstrates greater acknowledgment and acceptance of both osteopathy and osteopathic medicine throughout the world. Additionally, the evidence for effectiveness of manual therapies is growing and becoming more robust.

The OIA Board appreciates and recognizes the integral contributions of OIA member organizations to the data gathering process. The Chair is grateful to the OIA Board for its vision and diligent work in editing the document. Special thanks also go out to the following:

Professor Dawn Carnes, Project Manager, United Kingdom

Dr Julie Ellwood, Project Researcher, Ireland

Mr Charles Hunt, Immediate Past Chair OIA Board and Global Survey Task Force Chair, United Kingdom

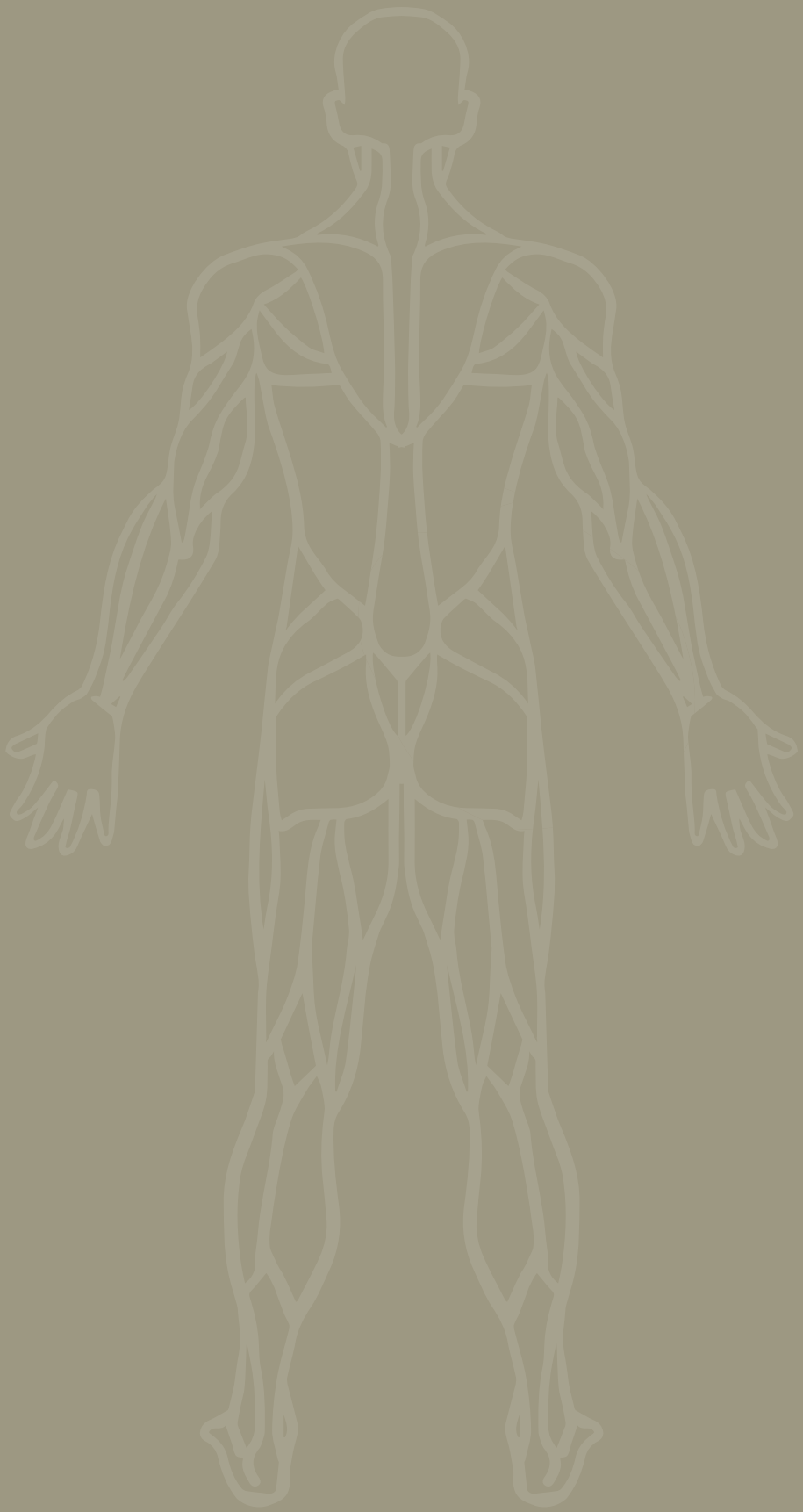
Ms Ana Paula Ferreira, Chair-elect OIA Board, Brazil

Ms Amy Byerwalter, Interim CEO, OIA, United States

The OIA Board of Directors is proud to submit this report to the World Health Organization in support of its strategic priorities, outcomes, and general program of work. We are also pleased to share this document with our member organizations to advance the global osteopathic profession and to advocate for high-quality osteopathic healthcare worldwide.

William S. Burke, DO, FACOFP

Dr William J. Burke
Chair, OIA Board of Directors



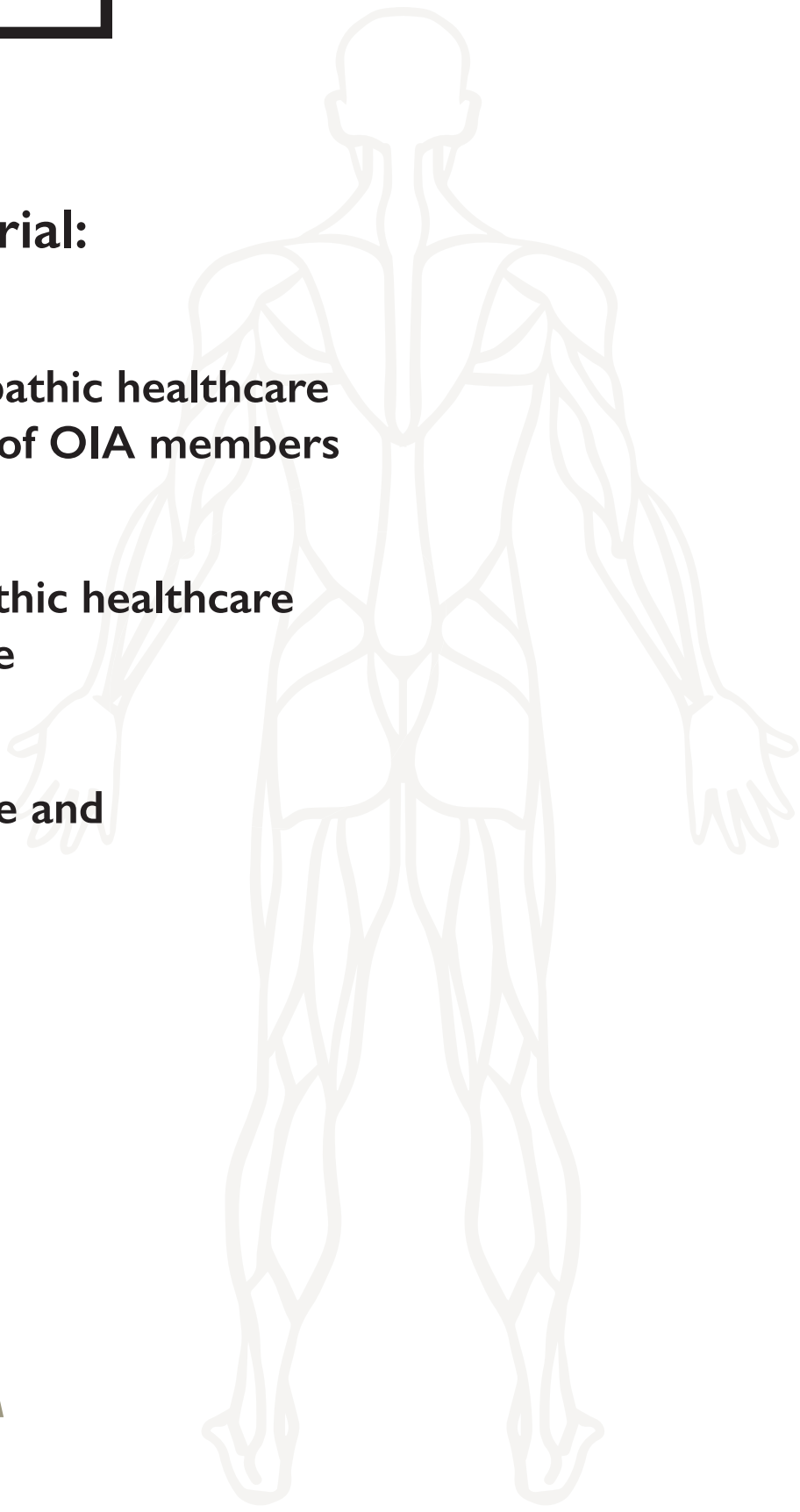
Global Overview

Supporting material:

PART I:
The status of osteopathic healthcare worldwide a survey of OIA members

PART II:
A profile of osteopathic healthcare a review of literature

PART III:
Osteopathy evidence and safety summary



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BACKGROUND

- Osteopathic healthcare is a based on a perception of the body as an integrated whole. It is a 'person-centered' rather than 'disease-centered' approach to the prevention, diagnosis and treatment of illness and injury.
- Osteopathic professionals use a range of techniques including 'hands-on' manual techniques for assessment and diagnosis to identify and then treat various health conditions, including musculoskeletal structural problems that influence the body's physiology, including the nervous system, circulation, and internal organs.
- There are two related professions providing osteopathic healthcare; there are osteopathic physicians providing osteopathic medicine and osteopaths providing osteopathy.

PRESENCE AND STATUS WORLDWIDE

- There are an estimated 196,861 clinicians delivering osteopathic care worldwide in 46 countries.
- There are around 117,559 registered osteopathic physicians or physicians with additional training in osteopathy.
- There are 79,302 osteopaths. Of these 45,093 are statutorily regulated and registered osteopaths and we estimate 34,207 osteopaths are not statutorily regulated and registered but may be registered with voluntary registering organizations.
- Osteopathic physicians are statutorily regulated and can obtain a license to practice medicine in 57 countries
- Osteopaths are statutorily recognized as healthcare professionals and regulated by law in 13 countries.
- Osteopathy is either not recognized or regulated by governmental statute in 22 countries, where registration is voluntary.
- The number of osteopaths per 100,000 capita varies from <1 in Argentina, Brazil, Greece, Russia, and the United Arab Emirates to 11 per 100,000 in Australia, 14 in Switzerland, 15 in New Zealand, and 49 in France.

Table 1. Number and status of osteopathic physicians and osteopathic practitioners worldwide

Osteopathic physicians and/or medical physicians with osteopathic training (Statutory regulated)	Statutory regulated and registered osteopaths	Voluntary registered osteopaths and non-registered osteopaths
Belgium 4	Australia 2741	Argentina 139
Burundi 1	Denmark 165	Austria 1000
Canada 37	Finland 485	Belgium 866*
Caribbean 0	France 33,000	Brazil 139
Denmark 1	Iceland 6	Canada 2900
Ethiopia 1	Lichtenstein Unknown	Croatia Unknown
Finland 3	Malta 11	Cyprus 15
France 2500	New Zealand 735	Egypt 8
Germany 2547	Portugal 1352	Fed. States of Micronesia 0
Greece 1	South Africa 38	Germany 4065
Italy 250	Switzerland 1086	Greece 35
Kenya Unknown	United Arab Emirates 35	Israel 90
Malawi 2	United Kingdom 5,439	Italy 13,600
Nigeria Unknown		Japan 96
Papua New Guinea 1		Netherlands 700
Russia 1500		Norway 372
Singapore Unknown		Republic of Korea 101
Slovenia 3		Republic of Ireland 157
Spain 4		Seychelles Unknown
United Arab Emirates 2		Singapore 50
United States of America 110,700		Spain 9420
Zambia 2		Sweden 456

*Self-reported Belgian number updated to 1800 at the time of publication. All numbers included in this report are self-reported.

OSTEOPATHIC EDUCATION AND TRAINING

- Osteopathic physicians have a minimum of a medical degree qualification and post-doctoral training that enables them to practice as licensed medical physician plus additional training in osteopathic principles and osteopathic manipulative treatment.
- Osteopathic physician education institutions are found in at least 6 countries.
- Osteopath qualifications ranged from diplomas to Masters degrees.
- The minimum education requirement to practice for new osteopaths is a Bachelor degree in most countries.
- Osteopathic training and education institutions are found in at least 20 countries.
- Where osteopathy is regulated there is an obligatory requirement for continuing professional development, in countries where osteopathy has voluntary registration there are informal requirements.
- Continuing Professional Development is stipulated by hours spent learning (range 11 to 40 hours).

OSTEOPATHIC PRACTICE

- The majority of osteopathic practitioners are aged between 30 and 59 years, with more than 8 years of work experience as an osteopath or osteopathic physician.
- Osteopaths generally work in practices on their own.
- Osteopaths across UK and central Europe are generally able to provide their patients with an osteopathic consultation within one week.
- The most common forms of manual treatment modality are soft tissue manipulation, joint mobilization and manipulation, but may also include other approaches such as facilitating self-management, giving wellbeing and lifestyle advice and support as part of a package of care.
- The reported range and diversity of techniques used by osteopaths and osteopathic physicians is large. In central Europe there is a preference for more gentle techniques such as osteopathy in the cranial field, visceral, functional, and bio-dynamic techniques compared with the UK and Australia where the preference is more towards structural techniques such as soft tissue manipulation, articulation/mobilization, and spinal manipulation technique.

OSTEOPATHIC PATIENTS

- People seeking osteopathy for care are typically between 40 and 50 years old, although children make up around 10-25% of patients and of these around three quarters are under 2 years old.
- More females than males (60:40) visit an osteopath.
- Osteopathic patients typically seek care for low back, mid back, and neck pain although in some countries care for non-musculoskeletal conditions such as digestive complaints, headaches, respiratory conditions and specifically for women's health is common.
- Patients who attend osteopathic consultations are likely to be employed/self-employed adults.

EVIDENCE AND SAFETY OF OSTEOPATHIC CARE

- Practitioners from different manual therapy disciplines share many of the same techniques, such as mobilization, manipulation, muscle energy and soft tissue techniques.
- The evidence for effectiveness of manual therapies is growing and becoming more robust. There is moderate and strong evidence for pain relief and improving function for low back, neck, shoulder disorders and headaches.
- There is a growing positive evidence base of beneficial effects for hip and knee osteoarthritis, heel pain, pulled elbow in children, length-of-hospital-stay in pre-term infants, irritable bowel syndrome, lymphatic drainage as part of breast cancer care and infantile colic.
- The risk of serious harm with manual treatments including with manipulation and mobilization techniques is very low.

Table 1. Evidence summary of beneficial effects with manual therapy

The orange boxes indicate moderate to high level evidence of benefit. Techniques tested varied between manipulation, mobilization, soft tissue manipulation, muscle energy techniques and combinations. The blue boxes indicate moderate to low level evidence.

Condition (with positive, moderate, or high-level evidence)	Pain reduction	Function/ ROM/disability	Return to work	Quality of life	Satisfaction with care	Other
Adult low back pain						Co-ordination
Pediatric low back pain						
Pregnancy related low back, pelvic pain						
Post-partum low back and pelvic pain						
Neck Pain						
Headaches						
Shoulder dysfunctions						
Elbow pain						
Hip osteoarthritis						
Knee osteoarthritis						
Heel pain (plantar fasciitis)						
Infantile colic						Reduction in crying time
Infant pulled elbow						
Preterm infants						Length of hospital stay
Breast cancer care (upper extremity lymphatic drainage)						
Irritable bowel syndrome						

COMPARISON BETWEEN 2013 AND 2020

- The global osteopathic profession is rapidly growing. Since 2013 the number of osteopathic physicians has increased by 34%; osteopaths by 84%.
- The number of countries where osteopaths are recognized formally as healthcare professionals contributing to the healthcare delivery of their nations has grown, indicating greater acknowledgment and acceptance of the profession globally.
- The availability of data is more consistent across nations, although it is still difficult to accurately define in some countries the number of practicing osteopaths and osteopathic physicians where registration is voluntary.
- The patient demographic has changed, osteopaths see more children (0-2 years old: 8.7% in 2013 to 16.7%) and older adults (>65 years: 9% in 2013 to 15.1%) and working age adults decreased from 69% to 49.5%.
- The reasons for seeking care have not changed, low back and neck pain are the most common complaints and around one third are acute presenting complaints.
- Osteopaths deliver multiple interventions as a part of a package of care, which was less obvious in 2013.
- The evidence base is stronger with additional emerging evidence of benefit for osteoarthritic conditions, chronic pelvic pain in women, irritable bowel syndrome, lymphatic drainage, infantile colic, pulled elbow and for preterm infants.
- The evidence about safety of manual therapy is more conclusive and established.

CONCLUSIONS

- Osteopathic care makes a substantial contribution to healthcare across the globe. If we use a modest assumption that osteopaths deliver around 25 consultations per week for 46 weeks in every year, we can estimate that the total number of osteopaths and osteopathic physicians (n = 196,851) provide around 226,378,650 healthcare consultations per year.
- If we take the mean number of consultations per patient as 6, we can estimate that around 37,729,775 people receive osteopathic care per year across the world in a year.
- Osteopaths generally deliver a multi-component complex intervention as a package of care which is bespoke. This type of healthcare fits with a growing demand from international health agendas to improve overall patient wellbeing and consider the biological, sociological, psychological, and spiritual needs of people as part of global health.

PART I.

The status of osteopathic healthcare worldwide: A SURVEY OF OIA MEMBERS.

SUMMARY

- Osteopathy is practiced in around 46 countries worldwide.
- There were around 117,559 registered osteopathic physicians and around 79,302 osteopaths.
- There was statutory regulation for osteopathic physicians and medically trained physicians with osteopathic training practicing in 22 countries in addition to a further 35 countries where US trained osteopathic physicians who are licensed to practice as medical physicians.
- Osteopaths practice in 35 countries, of which there was statutory regulation in 13 countries, and recognition of the profession as a healthcare practice in a further 6 countries.
- There was almost an equal gender representation internationally for both osteopathic physicians and osteopaths with the exception of Argentina where 70% of osteopaths were female and Portugal where 70% were male.
- A considerable proportion (50-70%) of osteopaths and osteopathic physicians worldwide are between 30 to 49-years-old.
- In all countries, with the exception of Republic of Korea, Slovenia, and Malawi where certain conditions apply, self-referral for consultation is permissible and commonplace.
- The minimum requirement to practice as an osteopath is a Bachelor degree in most countries with educational institutions for osteopathic training found in at least 20 countries.
- Training as an osteopathic physician is underpinned by a medical degree and there are educational institutions found in at least 6 countries.

CONTENTS

1. INTRODUCTION

The Osteopathic International Alliance (OIA) was established to advance and unify the global osteopathic profession by connecting schools, regulatory bodies, and regional, national, and multi-country groups. The global osteopathic profession comprises two related professions: osteopathic physicians and osteopaths. The OIA is an organization of organizations which launched in 2003 when 34 individuals representing ten countries and seventeen organizations came to together to support the global profession.

Today the OIA represents 73 organizations from 20 countries on five continents. It is the primary international organization advocating for high-quality osteopathic healthcare and a leading representative of osteopathic physicians and osteopaths worldwide. Part of the OIA remit is to collect and disseminate accurate targeted information about the global osteopathic profession. This objective was prioritized in response to a call from the World Health Organization's Traditional and Complementary Medicine Unit and their strategy objectives (2014-2023) to understand more about global traditional healthcare.

In 2013 the OIA put together a report and published: Osteopathy and Osteopathic Medicine: A Global View of Practice, Patients, Education and the Contribution to Healthcare Delivery (https://oialliance.org/resources/oia-status-report/). This report detailed information about the status of the osteopathic healthcare provision worldwide and the contribution it made to worldwide healthcare. The report content was targeted at national and international policy makers, health ministers, government departments, non-governmental organizations, educators, students, health media and interested members of the public. It has also been extensively used by members of the global osteopathic profession to help describe and explain the role of osteopathic physicians and osteopaths in osteopathic healthcare provision. The report described osteopathic healthcare, its history and evolution. A survey conducted by the OIA in 2012 enabled them to provide data about the nature of the osteopathic healthcare: its scale, the practitioner profile, its regulation and registration, the patient profile, its education and training systems and the evidence about effectiveness and safety.

The aim of this report is to update the 2013 report and provide information about the current status of the global osteopathic profession. It covers the size, structure, and nature of the professions worldwide.

2. THE SURVEY

The Osteopathic International Alliance (OIA) conducted a survey in 2020 designed to update the information collected and published in the OIA 2013 Global Report (https://oialliance.org/resources/oia-status-report/). The 2020 survey was divided into 5 sections about: the country/region, the state of recognition and regulation, practitioner and practice demographics, education and continuing professional development (CPD). OIA member organizations and peer networks were contacted to provide information for this report. There are two related professions providing osteopathic healthcare, there are osteopathic physicians providing osteopathic medicine and osteopaths providing osteopathy. Both osteopathic physicians and osteopaths contributed data to this survey. All OIA members were invited to contribute data.

The survey questionnaire attracted 55 responses from 29 countries. Missing data, where available online or through personal communication, allowed the inclusion of a further 17 countries resulting in a total of 46 countries represented in this report. In some circumstances multiple responses were received for one country resulting in differing data. Some of the discrepant data was due to live databases that can change daily and others because respondents represented one of several country organizations. In these cases, clarification was sought from respondents, the OIA and other online sources and the best estimate was made from all the information collated. All data for both osteopaths and osteopathic physicians was analyzed and organized by country into four main themes which are presented here. The first theme presents the global osteopathic profession at the organizational level and examines recognition, regulation, and numbers on the register. The second theme presents information on practitioner demographics by country. The third theme describes details on practice management and the final theme presents education within the professions including continuing professional development (CPD) conditions.

Definitions and the survey questionnaire

We asked about recognition, registration and regulation of osteopathic physicians and osteopaths. We defined recognition as a situation where: osteopathy is a recognized and legitimate profession, meaning osteopaths can practice legally. This normally means that the title is protected by law, and that osteopathic physicians and osteopaths can only use these titles if they meet certain statutory conditions in terms of competencies and training.

We defined regulation as statutory or voluntary. Statutory or legal regulation normally requires statutory registration as the health professional must comply with set standards of practice that protect the patients they treat; statutory regulation is set out in government or state law. Regulation and registration can be voluntary, that is, it is not required by law. Voluntary regulation is where practitioners normally have to voluntarily comply with a code of good practice. Voluntary registration also exists but it does not necessarily always mean it is associated with voluntary regulation.

The questionnaire is shown in the appendix.

3. FINDINGS

3.1 Number of osteopathic physicians and osteopaths

We found data from 46 countries in total, indicating some form of osteopathic practice. We estimated that there are around 196,861 osteopathic physicians and osteopaths practicing globally. Table 1 provides a snapshot of the current scale of osteopathic practice around the world. In addition to the countries listed in Table 1 the Caribbean countries, Croatia, Federated States of Micronesia, Kenya, Nigeria, and the Seychelles provided information about osteopathic care in their countries but reported no practicing osteopathic physicians or osteopaths.

Osteopathic physicians

Globally, osteopathic physicians outnumber osteopaths. However, the vast majority of osteopathic physicians practice in the United States of America (USA) with a small proportion practicing throughout the rest of the world, mostly in Germany. As registered doctors, the data for osteopathic physicians was more complete than for osteopaths. The current survey identified 117,559 registered osteopathic physicians worldwide, with approximately 110,700 of these registered in the USA. Access to osteopathic physician care in the USA is estimated at 34 osteopathic physicians per 100,000 people. In the rest of the world, it is much lower ranging from 4 and 3 per 100,000 in France and Germany respectively and even lower in the rest of the world (Table 1).

Osteopaths

Assessing the total number of osteopaths globally was more difficult as many countries do not regulate or register the profession, so the aggregated data included a number of estimates. Overall, the current OIA 2020 survey identified 79,302 osteopaths worldwide. Access to osteopaths ranged from < 1 per 100,000 people in many countries to 23 in Italy and 49 in France and 20 in Spain. Countries that have between 10 and 15 osteopaths per 100,000 were Australia, Austria, New Zealand, Portugal, and Switzerland (Table 1).

Table 1 Access to osteopaths and osteopathic physicians

Country	Population	Number of osteopaths (per 100,000)	Number of osteopathic physicians (per 100,000)	Information Source (number of responses)
Argentina	44.5M	139 (<1)	0	Survey (x1)
Australia	25M	2,741 (11)		Survey (x1) AHPRA
Austria	8.86M	1,000 (11)		EFFO
Belgium	11M	866* (8)	4 (<1)	Survey (x1)
Brazil	210M	139 (<1)		Survey (x3)
Burundi	11.9M		1 (<1)	OIA
Canada	37.6M	c2,900 (8)	37 (<1)	Survey (x9) & OIA
Cyprus	1.2M	15 (1)		EFFO
Denmark	5.8M	165 (3)	1 (<1)	Survey (x1)
Egypt	102.3M	8 (<1)		OIA
Ethiopia	115M		1(<1)	OIA
Finland	5.5M	485 (9)	3 (<1)	Survey (x1)
France	67M	33,000 (49)	2,500 (4)	Survey (x1)
Germany	83M	4,065 (5)	2,547 (3)	Survey (x4)
Greece	10.7M	35 (<1)	1(<1)	Survey (x1)
Iceland	364K	6 (2)		EFFO
Israel	8.66M	90 (1)		EFFO
Italy	60M	13,600 (23)	250 (<1)	Survey (x1)
Japan	125M	96 (<1)		Survey (x1)
Malawi	17M		2 (<1)	Survey (x1)
Malta	441.5K	11 (2.5)		EFFO
Netherlands	17.1M	700 (4)		EFFO
New Zealand	5M	735 (15)		Survey (x3)
Norway	5.5M	372 (7)		Survey (x1)
Papua New Guinea	8.95M		1 (<1)	OIA
Portugal	10.28M	1,352 (13)		Survey (x2)
Republic of Ireland	4.9M	157 (3)		Survey (x1)
Republic of Korea	45M	101(<1)		Survey (x1)
Russia	144.5M		c1500 (1)	Survey (x4)
Singapore	5.8M	50 (<1)		Survey (x3)
Slovenia	2M		3 (<1)	Survey (x1)
South Africa	59.3M	38 (<1)		OIA
Spain	46.8M	9,420 (20)	4 (<1)	EFFO
Sweden	10M	456 (5)		Survey (x1)
Switzerland	8M	1,086 (14)		EFFO
United Arab Emirates	9M	35 (<1)	2 (<1)	Survey (x1)
United Kingdom	67M	5,439 (8)		Survey (x1)
Unites States of America	330M		110,700 (34)	Survey (x5)
Zambia	18.4M		2 (<1)	OIA
Total		79,302	117,559	
		(Range <1 – 56 per 100,000)	(Range <1– 34 per 100,000)	

*Self-reported Belgian number updated to 1800 at the time of publication. All numbers included in this report are self-reported.

3.2 Recognition and regulation of osteopathic physicians and osteopaths

Of the 46 countries included in this report, osteopathy is recognized as an independent profession in 25 countries. Twenty-two countries had registers for osteopathic physicians, or medical doctors with additional osteopathic training. Two countries (Russia and United States) recognize medically trained osteopathic physicians specifically (Table 2). Thirteen countries were identified with statutory regulation for osteopaths and 22 countries with voluntary regulation for osteopaths (Table 3).

Osteopathic physicians

The medical physicians who undertake further training in the practice of osteopathy, generally hold a license under their medical organization to practice medicine but the requirement for osteopathic regulation is usually voluntary and therefore were not captured in our survey data unless they had voluntarily registered with an osteopathic organization.

USA trained osteopathic physicians can obtain a license to practice as medical physicians in 57 countries. In addition to the countries listed in Table 2 they can practice in the following 35 countries: Australia, Botswana, China, Costa Rica, Dominican Republic, Ethiopia, Eswatini, Ghana, Grenada, Guam, Haiti, Iran, Ireland, Israel, Jamaica, Kenya, Lesotho, Liberia, Macedonia, Malta, Mauritius, Namibia, Nigeria, New Zealand, Puerto Rico, Rwanda, Seychelles, Sierra Leone, South Africa, South Sudan, Tanzania, Uganda, United Kingdom, US Virgin Islands, Zimbabwe. We do not have any data from these countries about the number of osteopathic physicians that may be practicing in them.

Osteopaths

The status of regulation for osteopaths varies between countries, and sometimes within countries (e.g., Canada) regardless of recognition and depending on qualification as an osteopath or osteopathic physician. Some countries have achieved statutory regulation which is enforced by law, while others are working towards it (e.g., Italy and Republic of Ireland). Many countries without statutory regulation have specific national or regional agreements for voluntary regulation which allow for recognition as primary healthcare practitioners.

In Germany, osteopaths with training in heilpraktiker as well as medically trained osteopathic physicians are recognized, voluntary regulation in Germany for osteopaths stipulates prior training as medical doctor or heilpraktiker. (Table 2). Individual stipulations for professional practice vary between countries particularly in those with voluntary arrangements. For example, in Belgium* regulation to practice as an osteopath is voluntary, legislation on non-conventional medical practices has existed since 1999 (which is known as the Colla law and includes osteopathy) but has not yet been implemented. In Brazil there is classification by the Brazilian codex of Occupations of Brazilian Labour Ministry but it is not statutory for osteopaths or osteopathic physicians. Canadian regulations vary depending on province; Quebec has voluntary regulation for osteopaths, Ontario has voluntary regulation for osteopaths and osteopathic physicians and Alberta has statutory regulation for osteopathic physicians only.

*Self-reported Belgian number updated to 1800 at the time of publication. All numbers included in this report are self-reported.

Table 2 Recognition and Statutory Regulation by country

Country	Recognition	Statutory regulation or registration
Argentina	No	No
Australia	Yes	Yes
Austria	No	No
Belgium	Yes	No
Brazil	No	No
Canada	Varies by province	Varies by province
Caribbean	Varies by country	Yes
Croatia	No	No
Cyprus	No	No
Denmark	Yes	Yes
Egypt	No	No
Fed. States of Micronesia	Yes	No
Finland	Yes	Yes
France	Yes	Yes
Germany	Yes (MD or Heilpraktiker qualification required)	None specific to osteopathy
Greece	No	No
Iceland	Yes	Yes
Israel	No	No
Italy	Yes	No
Japan	No	No
Lichtenstein	Yes	Yes
Malawi	Yes	Yes
Malta	Yes	Yes
Netherlands	No	No
New Zealand	Yes	Yes
Nigeria	Yes	Yes
Norway	Yes	No
Portugal	Yes	Yes
Republic of Ireland	Yes	No
Republic of Korea	No	No
Russia	Yes (MD qualification required)	Yes
Seychelles	No	No
Singapore	No	No
Slovenia	No	No
South Africa	Yes	Yes
Spain	No	No
Sweden	No	No
Switzerland	Yes	Yes
United Arab Emirates	Yes	Yes
United Kingdom	Yes	Yes
Unites States of America	Yes (USA DO qualification required)	Yes

3.3 Numbers of regulated registered, non-regulated and, or voluntarily registered osteopathic physicians and osteopaths

Osteopathic physicians

Osteopathic physicians are registered as licensed medical professionals, we identified 117,559 registered osteopathic physicians and or physicians who have additional training in osteopathic care who register themselves as osteopaths with physician training.

Osteopaths

There were an estimated 79,302 osteopaths (Table 3). Thirteen countries had 45,093 (57%) osteopaths who were both statutory regulated and registered. The remaining 34,209 (43%) osteopaths were either voluntarily registered or estimated numbers of practicing non-registered osteopaths. Most osteopaths are statutorily registered and regulated, osteopathy is not regulated in the central European countries of Germany, Italy and Spain, these countries alone made up 27,685 or 35% of all osteopaths.

France has by far the most registered osteopaths; it has an estimated 33,000. France recognizes the practice of osteopathy and the title. Osteopaths must register for a license to practice osteopathy from their Regional Health Agency. In France osteopathy can be delivered by practitioners registered as other healthcare professionals such as physiotherapists and midwives. It is recommended that osteopaths are trained to Masters level but there are many practitioners who are registered as osteopaths who may have undertaken different training, hence the high numbers of registered as osteopaths (33,000). A register of all osteopaths is held by the French Health Ministry, but once registered there is no need to re-register, so many of those registered may not be in active practice and may not have followed the current recommended Masters level courses now preferred to register as an osteopath in France. There are two main, non-health department, osteopathic registers: Le Syndicat Français des Ostéopathes (SFDO) (around 2,527 members) and OsteoFrance (around 3,500 members), indicating that there are a minimum of 6,000 actively practicing osteopaths in France. Regulation responsibility is via the regional health agency issuing the license to practice and the two professional bodies above who are recognized by the health minister to represent osteopaths.

Italy, Spain, and Germany also yield high numbers of practitioners but have voluntary registration and regulation rather than statutory (13,600, 9,420 and 4,065 respectively). These figures represent a mixture of voluntary registered and non-registered osteopaths. The United Kingdom (UK) has the largest number of statutory regulated osteopaths (5,439), followed by Australia (2,741) and Portugal (1,352).

Table 3 Osteopathic physicians and Osteopaths

Osteopathic physicians and/or medical physicians with osteopathic training (Statutory regulated)	Statutory regulated and registered osteopaths	Voluntary registered osteopaths and non-registered osteopaths
Belgium 4	Australia 2741	Argentina 139
Burundi 1	Denmark 165	Austria 1000
Canada 37	Finland 485	Belgium 866*
Caribbean 0	France 33,000	Brazil 139
Denmark 1	Iceland 6	Canada 2900
Ethiopia 1	Lichtenstein Unknown	Croatia Unknown
Finland 3	Malta 11	Cyprus15
France 2500	New Zealand 735	Egypt 8
Germany 2547	Portugal 1352	Fed. States of Micronesia 0
Greece 1	South Africa 38	Germany 4065
Italy 250	Switzerland 1086	Greece 35
Kenya Unknown	United Arab Emirates 35	Israel 90
Malawi 2	United Kingdom 5,439	Italy 13,600
Nigeria Unknown		Japan 96
Papua New Guinea 1		Netherlands 700
Russia 1500		Norway 372
Singapore Unknown		Republic of Korea 101
Slovenia 3		Republic of Ireland 157
Spain 4		Seychelles Unknown
United Arab Emirates 2		Singapore 50
United States of America 110,700		Spain 9420
Zambia 2		Sweden 456

*Self-reported Belgian number updated to 1800 at the time of publication. All numbers included in this report are self-reported.

3.4 Number of osteopathic physicians and osteopaths compared with 2013

Since the OIA 2013 Global Report, the number of both osteopathic physicians and osteopaths has increased.

Osteopathic physicians

The OIA 2020 survey of 46 countries identified 117,559 osteopathic physicians worldwide compared with 87,850 recorded in the OIA 2013 Global Report; this is an increase of 34%. The majority of osteopathic physicians continue to be in the United States where there are now approximately 110,700 on their register, also a 34% increase from the OIA 2013 Global Report which reported 82,500 registered US osteopathic physicians at that time.

Outside of the United States osteopathic physicians have a much lower representation compared with osteopaths. Germany reported 2,547 osteopathic physicians on their register increasing their numbers by 11% since 2013. Osteopathic physicians registered in France increased significantly (56%) since 2013 reporting approximately 2,500 currently on their register. Russia report in the region of 1,000 registered osteopathic physicians, a decrease of 23% from the data that had been estimated in the OIA 2013 Global Report. There was an increase in the last 7 years from 20 registered osteopathic physicians to 30 in Canada, and the numbers in Italy remained much the same at 50. (Table 4)

Table 4 Registered osteopathic physicians by country (c =circa / approximately)

Country	2020 Registered Osteopathic Physicians	Compared with 2013 OIA Global Report	Difference compared with 2013 data (%)
United States	110,700	82,500	+34
Germany	2547	2300	+11
France	2500	1600	+56
Russia	c1000	1300	-23
Italy	c50*	50	=
Canada	30	20	+50
Others	>10		
Total	117,599	87,850	+34

(*c.200 not registered)

Osteopaths

In 2020 we identified 79,302 osteopaths worldwide compared with 43,000 recorded in the OIA 2013 Global Report, demonstrating a significant increase in the profession of 84% over the last 7 years. France had the greatest number of registered osteopaths by country in the world (33,000), followed by United Kingdom (5,439), Germany (4,065) and Italy (3,600). Australia, Canada, Portugal, and Switzerland have between 1,000 and 3,000 osteopaths and a further eight countries have between 300 and 1,000 osteopaths on their registers. In Spain, where there is the second largest number of non-registered osteopaths after Italy, there is neither statutory nor voluntary regulation in place.

Examining the numbers of registered osteopaths more closely, there were decreases in the number of registered osteopaths reported in Belgium, Spain, Italy, Germany, and South Africa. However, these decreases should be regarded with caution as the numbers recorded in 2013 for these countries were mostly estimates (Table 5).

Table 5 Registered osteopaths by country

Country	2020 Osteopaths	Compared with 2013 OIA Global Report	Difference compared with 2013 data (%)
France	33000	17460	+89
United Kingdom	5439	4211	+29
Germany	4065	c5000-7000	-32
Italy	3600	c5000-6000	-34
Australia	2741	1725	+59
Canada	2000	c1500	+33
Portugal	1352	c400	+238
Switzerland	1086	c850	+28
Belgium	866*	1539	-44
New Zealand	735	c400	+84
Netherlands	700	630	+11
Austria	500	c500-600	=
Finland	485	c300	+62
Spain	420	c600-800	-40
Sweden	356	c200	+78
Norway	342	250	+37
Denmark	165	40	+312
Republic of Ireland	157	120	+31
Brazil	137	47	+192
Israel	90	c75	+20
Argentina	80	unknown	
South Africa	38	49	-22
Greece	35	30	+17
Cyprus	15	11	+36
All others	<15		
Total	78,562	43,000	+83%

*c = circa / around

*Self-reported Belgian number updated to 1800 at the time of publication. All numbers included in this report are self-reported.

3.5 Age and gender profile of osteopathic physicians and osteopaths

Gender

Osteopathic physicians

In the USA, 42% of osteopathic physicians were female and in Russia 52%.

Osteopaths

There was an equal gender representation internationally for Australia (54% female), Belgium (42%), Brazil (52%), Canada (50%), Germany (56%), New Zealand (55%), Switzerland (55%) and the UK (56%), there were two exceptions: Argentina where 70% of osteopaths were female and Portugal where 30% were female.

Age

The age profile of osteopathic physicians and osteopaths showed many similarities across all regions with 50-70% of practitioners falling into the 30 to 49-year-old age bracket, the exception being Argentina where two thirds of their osteopaths were between 40 and 59 years old. Data on the age of practitioners was not requested in the previous OIA 2013 Global Report however the current survey compares with data analyzed from published individual country surveys where 59% of respondents were between 30 and 49 years old where reported (see Part II). Australia and Ireland have the youngest age demographic with the proportion of osteopaths younger than 49 years old being 84% and 80% respectively. Table 6 shows the age profile of osteopathic physicians and Table 7 osteopaths.

Table 6 Age profile of osteopathic physicians

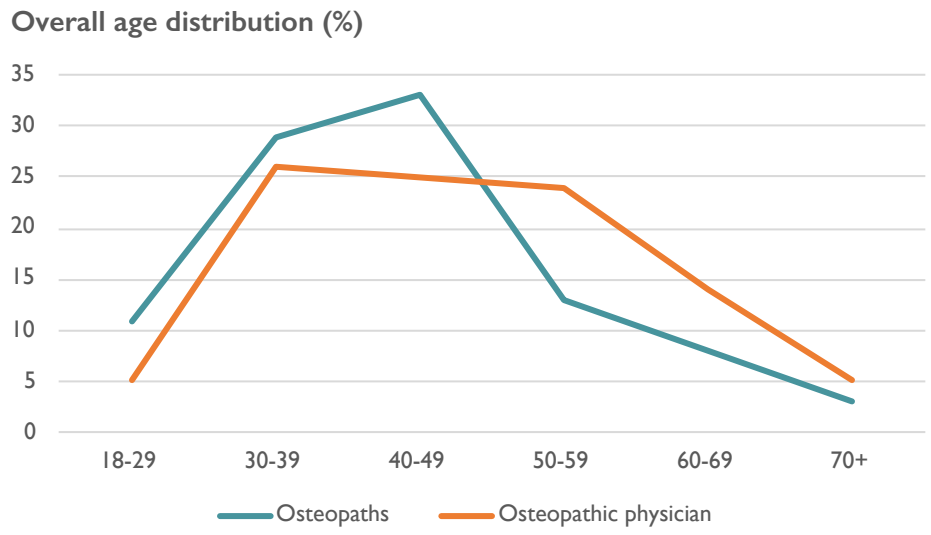
	18-29	30-39	40-49	50-59	60-69	70+
Germany		ca 10%	ca 20%	ca 30%	ca 20%	ca 10%
Russia	2.3%	27.4%	31.6%	26.2%	11.4%	1.15%
United States	7.7%	41.2%	22%	14.4%	10.9%	3.7%

Table 7 Age profile of osteopaths

	18-29	30-39	40-49	50-59	60-69	70+
Argentina	6%	7.5%	33.75%	33.75%	15%	3.75%
Australia	27.65%	33.9%	22.36%	8.8%	5.7%	1.6%
Belgium	11.5%	26.6%	26.3%	18.2%	14.25%	3.2%
Brazil	3.43%	34.3%	28.6%	25.14%	8%	0.6%
Canada - Québec	12.2%	29%	26%	19.85%	9.16%	3.8%
New Zealand	11.84%	25.17%	29%	18.9%	12.93%	2.18%
Republic of Ireland	10%	35%	35%	8%	8%	4%
Slovenia	0	67%	33%	0	0	0
Spain	?	'the majority'	?	?	?	
United Arab Emirates	20%	10%	60%	0	0	10%
United Kingdom	12.2%	22%	26.6%	27.3%	10%	1.9%
Switzerland	6%	30%	40%	20%	3.5%	0.5

Diagram 1. shows the average percentage of osteopathic physicians and osteopaths practicing in each age group range. The age profile of osteopathic physicians is older than the osteopaths, but the skew is towards the younger ages indicating a healthy supply of osteopathic physicians and osteopaths for the future sustainability of the professions providing the professions can retain them.

Diagram 1. Age distribution of osteopaths and osteopathic physicians



3.6 Cost and consultation information

Cost and number of consultations

Data on the cost and number of consultations per week was invited in the current OIA survey. In countries where data was provided, the price range for an osteopathic physician consultation was US$ 53-158 (€45 - €134) and average cost was US$ 111 (€94). An osteopathic appointment was between US$ 43 - 158 (€36 - €134) and the average cost was US$ 85 (€72). The average number of consultations per week is 35 - 40 for osteopathic physicians and osteopaths (Table 8).

Self-referral for treatment

In all countries except for Republic of Korea, Slovenia, and Malawi, where certain conditions apply, self-referral for consultation is permissible and commonplace. (Table 8)

Table 8 Cost and number of consults

Country	Average osteopathy consult cost (in €)	Average OP consult cost (in €)	Average number of osteopathy consults/ week	Average number of OP consults/ week	Can patients self-refer?
Argentina	40 U$D (36)	N/A	30	N/A	Yes
Australia	85 - 95 AUD$ (55)		40		Yes
Belgium	51 - 60 € (55)		31 - 35		Yes
Brazil	200,00 – 500,00 Rs$ (57)		25 - 50		Yes
Canada	80 - 135$ (70)		25 - 35		Yes
CARICOM Countries		Unknown			No
Denmark	500-1200 DKK (115)		30		Yes
Finland	60 – 85 € (72)		30		Yes
France	50 - 55 € (53)		20	30	Yes
Germany	70 - 120 € (95)	60 - 180 € (120)	30	30 - 80	Yes
Greece	30 - 60 € (45)				Yes
Italy	60 - 100 € (80)	70 – 120 € (95)	20 - 50	20 - 50	Yes
New Zealand	40 - 140 $NZ (52)	NA	30 - 60	NA	Yes
Norway	500 - 850 NOK (62)		50		Yes
Portugal	50 € (50)		50		Yes
Portugal					Yes
Republic of Ireland	50 - 70 € (60)		20 - 35		Yes
Republic of Korea	150 USD (134)	150 USD (134)	5	5	Only under certain conditions
Russia	3000 rubles (38)	3500 rubles (45)	20 - 35	20 - 35	
Singapore	135 - 160 S$ (94)	Unknown	35 - 70	Unknown	Yes
Slovenia	50 - 60€ (55)	70 – 80 € (75)	20 - 50	Unknown	Only under certain conditions
Southern Africa (Malawi)		free or 2 $		normal practice	Only under certain conditions
Spain	80 - 120 € (100)		20 - 30		Yes
Sweden	600 - 1000 SEK (76)				Yes
United Arab Emirates	AED 500 (121)	Unknown	60 - 80	Unknown	Yes
United Kingdom	£45-52 (52)	Unknown	31	Unknown	Yes
United States					Yes

3.7 Training, education and continuing professional development

Number of Osteopathy Training Institutions and predicted 2020 graduates

There was a general trend across all countries where those with more statutory registered osteopathic physicians and osteopaths had more training colleges. The United States was the only country that reported on 2020 graduate predictions for osteopathic physicians and estimated these at 7,136 from 38 schools, indicating that educational institutions in the United States for osteopathic physicians were much larger in size than any of the schools for osteopaths elsewhere (Table 9).

Although the OIA 2020 survey did not collect data on the size of the individual osteopathic training institution, in many countries there is a college for every 15-20 osteopath students/graduates with a few exceptions. Germany predicted double the number of osteopath graduates compared to Australia (500 vs 250), they report having more than 70 schools compared with only 4 in Australia (Table 10).

Table 9 Educational institutions for osteopathic physicians

Country	Number of educational institutions	Predicted number of graduates 2020
France	2	
Germany	7-8	
Italy	1	
Russia	'Many'	
Spain	2	
United States	38	7136
UK	1 (post MD qual)	5-10

Table 10 Educational institutions for osteopaths

Country	Number of educational institutions	Predicted number of graduates 2020
Argentina	5	6
Australia	4	250
Belgium	5	100
Brazil	5	c100
Canada	c15	
Denmark	2	25
Finland	3	50
France	31	1750
Germany	>70	500
Greece	1	15
Italy	c30	c500
New Zealand	2	10-25
Norway	1	35
Portugal	8	100-120
Republic of Ireland	1	15
Republic of Korea	1	
Spain	Estimated 10	200
Sweden	1	17
United Kingdom	10	230

Educational qualification

The OIA 2020 survey asked about minimum qualifications required to practice as an osteopathic physician or osteopath.

Osteopathic physician

Osteopathic physicians in the USA are trained and licensed to provide complete medical care equivalent to medical doctors. US osteopathic physicians are eligible for graduate training, licensure, board certification and hospital privileges. The training as a doctor in osteopathic medicine (DO) requires distinctive training and demonstration of competencies in osteopathic principles and practices that includes osteopathic manipulative treatment. In other countries, a physician with a medical degree can undertake postgraduate training in osteopathy to work as a physician osteopath.

Osteopath

Training as an osteopath is offered on a part-time and full-time basis in many countries and the qualification acquired at the end of the training can vary from undergraduate diploma to post-graduate Masters degree depending on the country and college attended.

Many osteopathic training courses have evolved over the years and expanded their portfolios to attain higher degree accreditation (Table 11). In countries where regulation is evolving recognized academic qualifications are required for new graduates entering the profession, however existing practicing osteopaths with many years of experience prior to regulation may apply to be registered practitioners without a formally recognized qualification.

Table 11 Minimum qualification currently required to register and practice as osteopath

Diploma	Bachelor	Master	Postgrad certificate/ diploma	Other*
Argentina	Australia	Belgium	New Zealand	Nigeria
Brazil	Brazil	France		Norway
Canada	Denmark	Rep of Korea		Switzerland
Germany	Finland			
Spain	Greece			
	Italy			
	Portugal			
	Rep of Ireland			
	Singapore			
	Malawi			
	Sweden			
	United Arab Emirates			
	United Kingdom			

*Nigeria – US DOs; Norway - 240 ECTS, BSC 3 years + 1 year DO; Switzerland - Medical board examination for license to practice.

Continuing Professional Development (CPD) requirements

As the recognition, registration and regulation conditions vary between countries, so do the CPD requirements. In all countries where the profession is regulated and in many where it is not, CPD is an obligatory requirement for continued registration which is evaluated and/or monitored. In some countries, although CPD is formalized, it is voluntary and therefore not required for registration. In other countries there are informal recommendations for CPD, or none at all (Table 12).

Table 12 CPD requirements

Obligatory (conditional on continued registration and evaluated or monitored)	Formal (voluntary but formalized requirements, explicitly stated)	Informal (voluntary suggested requirements)	None
Australia	Denmark	Brazil	Argentina
Belgium	France	Republic of Korea	Portugal
Canada	Greece	Russia	Singapore *
Germany	Italy	Spain	Slovenia
New Zealand	Sweden		
Nigeria			
Norway			
Republic of Ireland			
Southern Africa - Malawi			
United Arab Emirates			
United Kingdom			
United States			

* In Singapore registration with the national body from where qualification was granted must be maintained with the associated CPD requirements.

CPD for osteopathic physicians

Continuing professional development for osteopathic physicians is often defined by the national medical organization with additional osteopathic requirements. In the USA, where the majority of osteopathic physicians are trained and regulated, CPD requirements for osteopathic physicians vary depending upon specialty/state of licensure, but in general, involves at least 20 hours of continuing medical education (CME) per year, the American Osteopathic Association (AOA) require 120 credit hours in a three-year CME cycle. Reporting of osteopathic CME credit to the AOA is the responsibility of the accredited AOA sponsor and is not accepted directly from a physician. Sponsors have ninety days after the program to submit CME credits. A certificate of attendance must be provided to the AOA Department of Member Services indicating the total number of hours attended. Transcripts from other institutions (hospitals, CME trackers, etc.) are also accepted if they contain the total number of hours. Submissions must include the physician's name and AOA identification number.

In Russia, state assessment is currently under development. Admission to postgraduate seminars is granted if you have a diploma in osteopathy obtained under the program for at least 3500 hours. The employer is responsible for directing physicians to continuing education. The employer verifies certificates of continuing education. The educational institution is responsible for holding the final assessment when delivering the document confirming continuing education. Documents confirming the completion of training are necessary for the prolongation of the admission to the professional activity. These documents are entered in the Federal Register of Documents on education and qualifications. Qualification will be taken into account in subsequent accreditation held every 5 years; this is due to start in 2021.

The Federated States of Micronesia have a requirement of 50 contact hours every two years for general practitioners and additional 25 contact hours for specialized physicians, which should be from their specialty areas. Table 13 gives examples of other CPD schedules for osteopathic physicians.

Table 13 CPD for osteopathic physicians

Country	CPD hours/year	CPD monitoring
Canada	Defined by activity, not hours.	
Caribbean Countries	11-20 hours	
(18 hours medical specialist presentations, 2 hours ethics presentations)	Medical Council requirement for renewal of practicing certificate annually	
Federated States of Micronesia	50 hours/2 years (for GP's) and 25 hours (for specialized physicians).	
Germany	21-40 hours	
(also 250 hrs CME general medicine/ 5 years)		
	One lecturer should be an Osteopath and the CPD has to be certified by the VOD or EROP	
Italy	40+ hours	
Russia	40+ hours	
(or 144 hours/5 years)		
Malawi	21-30 hours	By Medical Council of Malawi
United States	20 hours min (depending on specialty/state of licensure)	Reporting of osteopathic CME credits to the AOA is the responsibility of the accredited AOA sponsor.

CPD for osteopaths

Many countries have a formalized CPD structure in place for osteopaths even where it is not obligatory. There are often recommendations around the type of CPD required for re-registration. For example, in Ireland child protection training and first aid certificate is compulsory every two years, in addition to yearly 30 hours with a minimum of 15 hours learning together. In Sweden, the Svenska Osteopatforbundet (SOF) provides two courses a year which fulfill their CPD requirements if both are attended. UK osteopaths must undertake 90 hours CPD over a three-year period which cover the breadth of osteopathic practice; there must be an objective activity completed, a communication and consent activity and towards the end of the three year cycle a peer-discussion review. New Zealand, on the other hand, has a new high-trust model under review, where the osteopathic council provides guidelines and osteopaths may choose what CPD relevant for them. There is a small variation in the number of required hours for CPD but most countries stipulate between 21 and 40 hours (Table 14).

Table 14 CPD for osteopaths

Country	CPD hours/year	Other - please specify	CPD stipulations	CPD monitoring and evaluation
Australia	21-30 hours		Must be applicable to scope of practice, including certain mandatory topics.	Record keeping obligations for 5 years and random audit by the regulator
Belgium	11-20 hours		Controlled and accredited, following certain criteria	External independent organization
Brazil	31-40 hours	Not mandatory	Teachers used from the countries where the osteopathic profession is regulated	
Canada	11-30 hours (where specified)	Multiple systems by province/territory, most based on points, not hours.	Professional and Business Development	Self-reported, with random auditing.
Denmark	21-30 hours			
Finland		Formally required	None	
France	40+ hours			
Germany	31-40 hours		Has to be certified by the VOD	Required for VOD registration
Greece	21-30 hours			
Italy	40+ hours			
New Zealand	21-30 hours		New high-trust model based on relevance of CPD to individual.	Self-declaration and 5% audit
Nigeria	21-30 hours		20 credits (1 credit = at least 1 hour CPD)	No specific way
Norway	11-20 hours		To cover specific topics such as: communications, ethics, clinical reasoning, techniques	Online registration, monitored by the association, counting hours/activities.
Republic of Ireland	21-30 hours		Compulsory child protection and first aid training (every 2 years) plus 30 hours/year CPD	Submitted with OCI re-registering and evaluated by the registrar.
Republic of Korea	31-40 hours			
Russia	31-40 hours		2 seminars each 18 hours recommended	No evaluation tools
Malawi	21-30 hours			
Spain	31-40 hours		Schools of Osteopathy	
Sweden	21-30 hours		Two SOF courses a year, or attendance of other approved courses	
United Arab Emirates	11-20 hours			License renewal is supported by CPD evaluation
United Kingdom	~ 30 hours	90 hours over a three-year cycle	90 hours CPD over 3 years to cover the breadth of osteopathic practice and peer-discussion review.	Annual declaration with renewal of registration form

4. CONCLUSIONS

When compared with the data from the OIA 2013 Global Report, the OIA 2020 survey shows an overall expansion for both osteopaths and osteopathic physicians. The number of osteopaths practicing worldwide has increased by 83% and osteopathic physicians has increased by 34%. There are a large number of educational institutions which mostly deliver qualification of at least bachelor degree level. The number of countries where osteopathy has statutory regulation has increased and in many more it is recognized and regarded as a healthcare profession in its own right.

APPENDIX

OIA Global Report update questionnaire 2020

Dear OIA member

The purpose of this questionnaire is to collect data to update elements of the OIA Global Report first published in 2013 (https://oialliance.org/resources/oia-status-report/)

The Global report has been very useful to the profession worldwide and has provided a valuable reference source for osteopaths and osteopathic organizations.

The information you provide will be collated and analyzed by the National Council for Osteopathic Research and University College of Osteopathy (UK). The data will be combined with a 'best evidence' update review and will be produced and published as a report for use by yourself, your organization and the profession.

Please answer the questions with the most up to date information you have by 22nd May 2020.

If you represent more than one country or region please can you complete a separate submission for each country or region.

We would like you to give your name and contact details in case we have any questions about your submission. These details will not be used for any purpose unrelated to this survey and will be destroyed once the study is complete.

We look forward to receiving your submission

Kind regards

William S. Burke, DO, FACOP

Dr. William J. Burke, Chair
Osteopathic International Alliance

The Osteopathic International Alliance is the leading organization for the advancement and unity of the global osteopathic profession. As an 'organization of organizations,' the OIA unifies osteopathic medicine by connecting schools, regulatory bodies, and regional, national, and multi-country groups.

The questionnaire is split into six sections:

A. About you and your country/region
B. Nature and type of regulation/registration
C. Demographics
D. Education
E. Continuing Professional Development
F. Other

A. About you and your country/region

1. Your name:

2. Your email:

3. The organization you represent (please complete a separate questionnaire for each organization you represent):

4. The country or region you represent:

5. Estimated population size of country/ region you represent:
   Date: Number :

B. Nature and type of regulation

Is osteopathy a recognized and legitimate (osteopaths can practice legally) health care profession in your country/region?

Yes / No / Other

1. Type of osteopathic regulation/recognition/registration in the country you represent:
   a. For osteopaths
   - Statutory (government or state regulated by law)
   - Voluntary (not enforced by law)
   - None
   - Other (please describe)

   b. For osteopathic physicians
   - Statutory (government or state regulated by law)
   - Voluntary (not enforced by law)
   - None
   - Other (please describe)

2. How many regulators or registers for osteopaths and/or osteopathic physicians are there in your country /region?

How many osteopaths are registered?

Number:

- Name:
- Name:
- Name:

C. Demographics

1. Number of registered osteopaths / osteopathic physicians in the organization you represent (as mentioned in question 3):
   - 2020 osteopaths =
   - 2020 osteopathic physicians =

2. In 2020 (or from your most recent data) please provide the:

a. Date:

- Number female osteopaths: Number male osteopaths:
- Age distribution of osteopaths:
  - o Female Male Total
- Number 18 -29 years:
- Number 30-39 years:
- Number 40 -49 Years:
- Number 50 – 59 years:
- Number 60 +:

b. Date:

- Number female osteopathic physicians: Number male osteopathic physicians:
- Age distribution of osteopathic physicians:
- Number 18 -29 years:
- Number 30-39 years:
- Number 40 -49 Years:
- Number 50 – 59 years:
- Number 60 +:

D. Education

1. a. Number of osteopathic education institutions in your country / region for osteopaths
   - Number:
   - Comment:

b. Number of osteopathic education institutions in your country / region for osteopathic physicians

- Number:
- Comment:

2. a. Number of osteopaths expected to graduate in 2020
    - Number:
    - Comment:

    b. Number of osteopathic physicians expected to graduate in 2020
    - Number:
    - Comment:

3. a. Minimum level of education and or training required for registration / regulation /recognition as an osteopath:
    - None
    - Diploma
    - Bachelor
    - Master
    - Osteopathic doctor/physician
    - PhD
    - Other (please describe)
    - Minimum level of education and or training required for registration / regulation /recognition as an osteopathic physician:
    - None
    - Diploma
    - Bachelor
    - Master
    - Osteopathic doctor/physician
    - PhD
    - Other (please describe)

E. Continuing Professional Development (CPD)

1. a. Continuing professional development in your country/region for osteopaths
    - Obligatory (conditional on continued registration and evaluated or monitored)
    - Formal (voluntary but formalised requirements, explicitly stated)
    - Informal (voluntary suggested requirements)
    - None required

1. b. Continuing professional development in your country/region for osteopathic physicians
    - Obligatory (conditional on continued registration and evaluated or monitored)
    - Formal (voluntary but formalized requirements, explicitly stated)
    - Informal (voluntary suggested requirements)
    - None required

2. a. How many hours per annum are required or suggested for CPD for osteopaths?
    - <10 hours
    - 11-20 hours
    - 21- 30 hours
    - 31 -40 hours
    - 41 +

3. a. Please describe any stipulations about organization and content of CPD?

4. a. How is CPD monitored and or evaluated?

    b. How many hours per annum are required or suggested for CPD for osteopathic physicians
    - <10 hours
    - 11-20 hours
    - 21- 30 hours
    - 31 -40 hours
    - 41 +

3. b. Please describe any stipulations about organization and content of CPD?

4 b. How is CPD monitored and or evaluated?

F. Other

1. If you have other information about osteopathic practice in your country, please provide links or information about how to access this information.

    Or send separately by email to dawn.carnes@uco.ac.uk

    Box (free text)

PART 2.

A profile of osteopathic healthcare: A REVIEW OF LITERATURE

SUMMARY

- The final selection of surveys included reports from, Australia, Belgium, Canada, Germany, Italy, Luxemburg, Netherlands, New Zealand, Spain, Switzerland, United States of America (USA) and the United Kingdom (UK).
- Osteopathic physicians actively practicing in the USA were 42% female, 66% were 44 years old or younger, 57% work in primary care: 31% of these in family medicine and 7% in pediatrics.
- Osteopaths in Central Europe and the UK were most likely to work alone most or all of the time (mean 61%), in 2013, 43% of osteopaths reported working on their own, with a further 14.1% reporting they worked with one partner.
- Osteopath qualifications varied between countries, Australian osteopaths were most likely to have a post graduate degree (Masters or above).
- Osteopaths, regardless of country, typically see around 30 patients per week.
- Consultations are typically between 30 and 60 minutes.
- Just over half of all patients can get an appointment with an osteopath within one week.
- Most patient's route to care is self-referral (79-95%).
- More females than males seek care from an osteopath (60:40).
- The age profile of patients treated by osteopaths has changed, in 2013 69% of patients were aged between 21 and 70 years old, compared to 49.5% in this report. The percentage of children below the age of 2 years increased from 8.7% in 2013 to 16.7%. Older patients (>65 years) represented 15.1% compared to a mean of 9% in 2013.
- Low back and neck pain are the most common presenting complaints.
- Around a third of patients seek care for acute conditions.
- Osteopaths use a variety of manual techniques and report high frequencies of giving advice and guidance about lifestyle, exercise and activity, diet, and ergonomics.
- More information is needed to fully describe the global osteopathic profession especially about how patients respond to osteopathic care, what their experiences are and how satisfied they are with the care they receive.

CONTENTS

1. INTRODUCTION

Osteopathic healthcare is based on the principle that the structure and functions of the body are closely integrated, and that a person's well-being is dependent upon the neurological, musculoskeletal, and visceral structures working in balance together.

The approach was established in 1874 in the USA by Dr. Andrew Taylor Still; over the first half of the 20th century osteopathic practice rapidly spread globally.

Osteopathic practitioners aim to assess and treat the 'whole person,' rather than just focusing on specific symptoms or illnesses. This perception of the body as an integrated whole means that osteopathic healthcare is often described as 'person-centered' rather than 'disease-centered' in its approach to the prevention, diagnosis and treatment of illness and injury.

Central to the osteopathic approach is a range of 'hands-on' manual techniques (referred to as 'osteopathic manipulative medicine - OMM' or 'osteopathic manipulative treatment - OMT') for assessment, diagnosis, and treatment. These techniques help the practitioner to identify and treat various health conditions, including musculoskeletal structural problems that, according to the osteopathic view, can influence the body's physiology, including the nervous system, circulation, and internal organs.

The osteopathic approach incorporates current medical and scientific knowledge when applying these osteopathic principles to patient care. Scientific review and evidence-informed outcomes have a high priority in patient treatment and case management.

There are two related professions that have emerged, osteopathic physicians and osteopaths. This is largely due to different legal and regulatory structures around the world: osteopathic physicians (practicing osteopathic medicine) are doctors with full, unlimited medical practice rights and can specialize in any branch of medical care; osteopaths (practicing osteopathy) are primary contact health providers with nationally-defined practice rights, and may not for example prescribe pharmaceuticals or perform surgery.

The title of osteopath is legally protected in some countries and requires statutory regulation under stringent conditions, in other countries this is not the case and the practice of osteopathy is neither formally recognized nor regulated. All osteopathic physicians are statutorily regulated.

Osteopaths are primary healthcare practitioners, as such, the osteopathic profession recognizes its responsibility to diagnose and refer patients as appropriate when the patient's condition requires therapeutic intervention that falls outside the competence of an osteopath.

Since the publication of the OIA 2013 Global Report several country surveys of osteopathic practice have been conducted. These surveys have collected data on characteristics of osteopathic practitioners (both osteopathic physicians and osteopaths), their patients and the nature of their practice.

The aim of this study was to search for literature profiling osteopathic healthcare to describe: practitioner characteristics, practice characteristics, clinical management, and patient profiles.

2. THE REVIEW OF LITERATURE

The search for literature

A search was conducted for surveys, reports and profiles of osteopathy related practices using medical journal databases. We also used our peer networks to identify non-published literature and PhD theses. Data collected since the publication of the last OIA 2013 Global Report were included (2012 -2020) which were written in English, or where the data was easily interpretable if written in another language.

We only included surveys conducted at a national or regional level profiling osteopathic physicians or osteopaths and their patients. We excluded studies that were not nationally or regionally representative and those that included subgroups of patients or specific types of osteopaths, for example from one education institution. We included the most recent data and excluded studies which were superseded by more current information. Data were extracted from the different surveys and where available were categorized and organized to describe:

- **Characteristics of the osteopathic physicians and osteopaths**
- **Characteristics of the practices of osteopathic physicians and osteopaths**
- **Clinical management and care of osteopathic physicians and osteopaths**
- **Osteopathic physicians' and osteopaths' patient characteristics**

All data was presented equally regardless of methodology, size, or response rate of the included studies.

Survey selection

We found 14 relevant studies profiling osteopathic physicians and osteopath healthcare provision and their patients. One from the United States of America (USA) described osteopathic physicians. The remaining 13 studies described osteopathy in Australia, Belgium, Canada, Germany, Italy, Luxembourg, Netherlands, New Zealand, Spain, Switzerland, and the United Kingdom (UK).

Osteopathic physicians

One survey described osteopathic physician healthcare in the USA. The most recent Osteopathic Medical Profession (OMP) report provided the data for the USA from 2019.

Osteopaths

We included the most recent survey from Australia, which was a comprehensive national workforce survey (Adams *et al* 2016). Belgium and Luxemburg were surveyed together in two cross-sectional, online, practitioner surveys (van Dun *et al* 2019 a and b), and along with the Netherlands in a third (van Dun *et al* 2016). The two more recent 2019 van Dun *et al* reports extracted different sets of data from the same survey known as OPERA (Osteopathic Practitioners' Estimates and RAtes) for Belgium and Luxemburg. The older 2016 report had a high cross-sectional response rate across osteopaths in Belgium, Luxemburg and the Netherlands, only the data for the Netherlands was extracted from this report The Canadian study was a regional snap-shot of Quebec practitioner/patient practices (Morin & Aubin 2014).

The OPERA project was developed as a European-based survey dedicated to profiling the osteopathic profession across Europe (https://www.comecollaboration.org/research/projects/#). In addition to the Belgium/ Luxemburg surveys, it has also been used to produce two surveys from Italy (Cerritelli *et al* 2019 and 2020) and one of two reports from Spain (Alvarez *et al* 2020). The second report from Spain is a smaller cross-sectional survey which included practitioner and patient responses (Alvarez Bustins *et al* 2018).

Extensive data was extracted from a recent unpublished doctoral thesis and associated summary report which surveyed the complex nature of osteopathic healthcare practices across Germany (Dornieden 2019). The most recent nationally representative Swiss report was a large cross-sectional survey of osteopaths and their practice characteristics which achieved a high response rate (Vaucher *et al* 2018). The most recent survey from the UK was conducted in 2019, this was a national survey of practice with a patient record audit. There were several other surveys but these pre-dated 2019 (Plunkett *et al* 2020).

Finally, data about New Zealand osteopathic practices was extracted from a report examining the profile of Complementary and Alternative Medicine (CAM) practices across several regions (Leach 2013). Data about other countries from this report were not extracted as more recent updated studies were available about these countries.

The surveys profiling osteopathic physicians and osteopaths, their practice and patients are described in Table 1.

Table 1 Survey selection

Country	Year	Author	Project	Method	Total # Osteo's	# Respondents Practitioner/patient	Response rate %
Australia	2018	Adams *et al*	ORION	Cross-sectional online practitioner questionnaire	2020	992 osteopaths	49.1
Belgium-Luxemburg-Netherlands	2016	van Dun *et al*	Osteosurvey by CORPP & SWOO	Online practitioner questionnaire	2050	1069 osteopaths	52.15
Belgium-Luxemburg	2019a	van Dun *et al*	OPERA I	Cross-sectional online practitioner survey	1529	357 osteopaths	23.34
Belgium-Luxemburg	2019b	van Dun *et al*	OPERA II	Cross-sectional online practitioner survey	1529	357 osteopaths	23.34
Canada	2014	Morin & Aubin	Quebec	Cross-sectional prospective paper/ email-based survey		227 osteopaths 14,002 patients	60.1
Germany	2019	Dornieden *et al*	DProf thesis	Survey	13059 - 8331 surveyed	1175 osteopaths	14.1
Italy	2019	Cerritelli *et al*	OPERA-IT	Cross-sectional online practitioner survey	c4600-5600	4816 osteopaths	86%
	2020	Cerritelli *et al*	OPERA-IT	Cross-sectional online practitioner survey	c4600-5600	4816 osteopaths	86%
New Zealand	2013	Leach	Profile CAM	Data collection by request or from websites	312		
Spain	2020	Alvarez *et al*	OPERA	Validated cross-sectional online practitioner survey	c4800-5900	517 osteopaths	Est 10%
	2018	Alvarez Bustins *et al*	Standardized data collection (NCOR)	Cross-sectional paper-based practitioner/patient survey		36 osteopaths 314 patients	59% (36/61)
Switzerland	2018	Vaucher *et al*	Practice review GDK-CDS osteopaths and assistants)	Cross-sectional online questionnaire and practice audit	1171	521 osteopaths 1144 patients	44.5%
UK	2020	Plunkett *et al*	OsteoSurvey	Cross-sectional online practitioner questionnaire	5300	500 osteopaths 395 patients	9.4%
USA	2019	OMP	OMP report of DOs		121,006		

3. DATA DESCRIBING OSTEOPATHIC HEALTHCARE

3.1 Practitioner characteristics

The majority of practitioners who responded to the surveys conducted were aged between 30 and 59 years with in excess of 8 years' work experience as an osteopath or osteopathic physician. Men and women were equally likely to respond in most surveys completed.

Practitioner age

The age of osteopathic physicians in the USA indicated that 66% of those actively practicing were less than 45 years old and 30% between 46-65 years old (Table 2).

Practitioner gender and time since qualifying

In the USA, 42% of osteopathic physicians were female (Table 3).

For osteopath respondents, females outnumbered males in all countries except Belgium/Netherlands/Luxembourg, Italy and Spain which had only 29%, 33% and 40% females respectively. However the overall mean was a 51:49 split between males and females. The respondents were experienced osteopaths with eight years or more of experience (Table 3).

Table 2 Practitioner age

		% of practitioner respondents by age group						
	Author and year	Average	20-29	30-39	40-49	50-59	60-65	>65
Osteopathic physicians								
USA	OMP 2019		66% <45 years	16.7% (45-54)	12.9% (55 - 64)			
Osteopaths								
Australia	Adams *et al* 2018	38						
Belgium	van Dun *et al* 2016	31.62 (30-39)	8	32	25	24	8	4
Netherlands			6	31	35	25	1.5	0.5
Luxembourg			15	35	40	10	0	0
Germany	Dornieden 2019	48 (median)						
Italy	Cerritelli *et al* 2019/2020	30-39	21.7	40.03	23.24	12.38	2.33	0.33
Spain	Alvarez *et al* 2020	30-39	9.8	53.3	31.5	3.6	1.1	0.3
UK	Plunkett *et al* 2020	46-50 years (median)	9.5	12	31	40	9 4	

Table 3 Practitioner respondents by gender and time since qualifying

Country	Author and Year	Male %	Female %	Practicing/mean time post grad
Osteopathic physicians				
USA	OMP 2019	53	42	
Osteopaths				
Australia	Adams *et al* 2018	42	58	11.4 years (mean)
Belgium- Luxembourg	Van Dun *et al* 2019	69	31	Belgium 12.2 years (mean) Luxembourg 8.1 years
Canada	Morin & Aubin 2014	34	66	0-10 years (51%) >11 years (49%)
Germany	Dornieden 2019	43	57	8 years (median)
Italy	Cerritelli *et al* 2019	67	33	
Netherlands	Van Dun *et al* 2016	65	35	8.7 years (mean)
Spain	Alvarez *et al* 2020	60	40	<5 years 46%, >5 years 54%
Switzerland	Vaucher *et al* 2018	45	55	11 years (median)
UK	Plunkett *et al* 2020	41	59	19-20 years (median)

Osteopathic physician qualifications

Osteopathic physicians in the USA require a Should be Doctor of Osteopathic Medicine (DO). This means that they are trained and licensed to provide complete medical care equivalent to medical doctors (MDs) but they also have comprehensive training in osteopathic principles and practices including osteopathic manipulative treatment.

Osteopath qualifications

Osteopathic qualification status varied depending on the country. A high proportion (>68.7%) of osteopaths in Australia had a post graduate degree (Masters or PhD) in osteopathy. In central Europe the majority of osteopaths were qualified at Certificate or Diploma level, however a large proportion of this group were reported as having a previous academic degree, primarily in physiotherapy and sports science. Many osteopaths also reported undertaking other professional roles including lecturing, research, physiotherapy and medical physician. Where reported, osteopathy training was predominantly taken as a part-time course (Table 4).

Table 4 Osteopathic qualifications

Country	Author and year	Previous academic qualification (%)	Osteopathic qualification %		Other professional roles (%)				
			C.O./D.O.	BSc	Grad certificate/ diploma	MSc	PhD	PT:FT training	
Australia	Adams *et al* 2018			21.6		>68.7	0.5		Volunteer (16) Clinical Supervision (15.1) Teaching (11.7) Prof Org (10.8) Research (5.4)
Belgium-Luxemburg-Netherlands	van Dun *et al* 2016	Physio (85.25)	89.39					80:20	
Belgium-Luxemburg	van Dun *et al* 2019a							66:34	
Germany	Dornieden 2019	Physio. (67) Heilpraktiker (33) Med. Doc. (11.6) Massage Ther. (7.5)	Cert (71) Dip (15)	4.1	Certificate osteopathische Verfahren (3.8)	5.9	0.1	94:6	Physio (43) Heilpraktiker (32) Lecture (23) PhysicianPhysician (20)
Italy	Cerritelli *et al* 2019	(73.8) Sports Science (36.4) Physio (25.3)	94	61.2		5.4	8.3	67:33	
Spain	Alvarez *et al* 2020	Physio (75)						4 yr PT	Physical Therapist (32) Teaching (21)
	Alvarez *et al* 2018	Physio. (88.5)							20
Switzerland	Vaucher *et al* 2018		93.6	2.7		2.7			

3.2 Practice characteristics

We only had data pertaining to USA osteopathic physicians about area of practice, most data was about osteopaths in Europe and Australia.

Practice location

Just over half (56.5%) of osteopathic physicians in the USA work in primary care, with 31.4% working in family medicine and 6.9% in pediatrics. Osteopaths in Europe were far more likely to work alone (range 41% to 64%) than those in Australia where only 16.3% reported working on their own. Those not working alone worked with a variety of other healthcare professionals including midwives, physiotherapists, doctors, dietitians but mostly they worked with other osteopaths (Table 5).

Practice management and time spent with patients

There was good comparability across different surveys which collected information on amount of time osteopaths spent with their patients. On average osteopaths worked 27 - 29.6 hours/week and saw between 20 and 38 patients per week. The reported length of time per consultation was 30 - 60 minutes for first and follow-up appointments (Table 6).

Referral pathways

Referral pathways between osteopaths and other healthcare professions were common, particularly with general practitioner/family physician, massage therapist and / or another osteopath. Osteopaths most commonly referred out to GP's and received referrals from GP's although the majority of patients came through self-referral (Table 7).

Table 5 Practice location and set-up

Country	Author and Year	Urban / Suburb	Rural/ Remote	Works on own (most or all of the time)	Practice: Multi-practitioner
Australia	Adams *et al* 2018	81.8%	18.2%	16.3%	Works with: other osteopaths (64.8%) massage therapist (50.5%) naturopath (9.5%) psychologist (19.3%) acupuncturist (19.0%)
Belgium-Luxemburg-Netherlands	van Dun *et al* 2016				Works with: Physiotherapists (64.4%), Other osteopaths (53.6%)
Germany	Dornieden 2019			58%	Works with: other osteopaths (74%) Physiotherapists (68%) Heilpraktiker (60%) Med Doc (24%) Midwife (13%)
Italy	Cerritelli *et al* 2019			58.4%	Work with others 41.6%
	Cerritelli *et al* 2020				Works with: other osteopaths (19.6) GP (8.1) Physiotherapists (23.3) Psychologist (15.5) Dietitian (13.9) Medical Specialist (21.6)
Spain	Alvarez *et al* 2020			41%	Works with: Physiotherapists (29%), Osteopath (28%), Dietitians (8%), Podiatrists (8%) and Psychologists (7%)
	Alvarez *et al* 2018				Works with other osteopaths (61- 64%)
Switzerland	Vaucher *et al* 2018	71.4%	37%	54%	Work with others (49.7%)
UK	Plunkett *et al* 2020	68.4%	28%	64%	Work with others (often or exclusively) (30%)
USA	OMP report 2019				56.5% work in primary care: 31.4% family medicine, 18.1% internal medicine and 6.9% pediatrics

Table 6 Time spent with patients

Country	Author and Year	Patients/week - mean (#NP)	Time: minutes with patient		Working hours	
			NP	FU	Hours/week - mean	Full Time : Part Time
Australia	Adams *et al* 2016	37			28.3	
Belgium-Luxemburg	van Dun *et al* 2019	31-35	30 – 60 mins	29.7		
Canada	Morin & Aubin 2014		55 mins			
Germany	Dornieden 2019	30 (1-5 NP/week 64%)	60 mins	52 mins	27	79.5% work 4-5 days/week
Italy	Cerritelli *et al* 2020	25-50 (estimated mode)	46 – 60 mins			
Netherlands	van Dun *et al* 2016	37	30-60 mins			
New Zealand	Leach 2013				>35 hrs (56%) (2006 NZ pop census)	
Spain	Alvarez *et al* 2020	21-30 (mode)	46 - 60 mins			60 : 40
	Alvarez *et al* 2018		45 – 60 mins			
Switzerland	Vaucher *et al* 2018	36 (5)	45 mins (median) 30-90 (range)			45% : 55% (Women) 74% : 26% (Men)
UK	Plunkett *et al* 2020	31 (7)	45 mins			

Table 7 Referral pathways

Country Author	Referrals out (%)						Referrals in (%)						
	GP	Med specialist	Physio/ Massage therapist	Osteopath	Podiatrist	Further tests	Self	GP	Med specialist	Physio/ Massage therapist	Osteopath	Podiatrist	With tests
Australia Adams *et al* 2018	88.5%		67.6%	51%	65.6%	55.9%		89.3%		76%	69.1%	47.5%	
Belgium-Luxemburg-Netherlands van Dun *et al* 2016							'Most'						
Germany Dornieden 2019	31% (incl. midwives)	41% (incl. Dentist/ orthodontist)	5	6.6 (incl. Physiotherapists, Heilpraktikers)			88%	50% (incl. Midwives)	40.5% (incl. Dentist/ Orthodontist)	6.2%	7.7% (incl. Physiotherapists, Heilpraktikers)		
Spain Alvarez *et al* 2020 Alvarez *et al* 2018	>50% *	>50%*	>50%*	>50%*			95%*	50%*	>50%	75%*	80%*		
							78%	23% (healthcare professional)					
Switzerland Vaucher *et al* 2018	9% referred to others by the osteopath					2.2 %	79%	18% referred by others to osteopath					15.1% Xray 1.4% MRI
UK Plunkett *et al* 2020	56%						83%	29%	12.5%	7%	18%		

* regularly, often or always

3.3 Clinical Management of Patients

The vast majority of patients seeking osteopathic care across UK and central Europe were seen within one week although many UK patients were seen within one day. Patients in the UK were more likely to report pain duration of less than 3 months. Musculoskeletal conditions (lower back and neck pain) account for the highest proportion of patient complaints across all regions.

The reported range and diversity of techniques used by osteopaths was large with an apparent preference for more gentle techniques such as osteopathy in the cranial field (OCF), visceral, functional, and bio-dynamic techniques in central European countries compared with the UK and Australia where the preference appears to be more towards structural techniques such as soft tissue manipulation (STM), articulation/mobilization and spinal manipulation technique (SMT).

Appointment scheduling

Patients waiting time for an appointment was in the main less than one week (mean 54% range 18.9-75%) and nearly 8% (range 0.85 – 16%) of all patients were seen within 24 hours of making contact with an osteopathic clinic (Table 8).

Table 8 Appointment scheduling

Country	Author and Year	1 day (%)	1 week (%)	1-2 weeks (%)
Belgium- Luxem-burg- Netherlands	van Dun *et al* 2016	2.5	53.6	31.8
Germany	Dornieden 2019	0.85	18.9	25.9
Italy	Cerritelli *et al* 2020	3.5(same day)	56	30
Spain	Alvarez *et al* 2020	13.4	58.4	16.2
	Alvarez *et al* 2018		75	25
Switzerland	Vaucher *et al* 2018	9.8	54.6	NR
UK	Plunkett *et al* 2020	16	64	15

Patients' reasons for seeking osteopathic care

Several surveys have collected data on the most commonly reported complaints by body region, condition type, onset of symptoms and treatment outcome. Where reported, musculoskeletal conditions accounted for the highest proportion of presenting complaints in osteopathic clinics, with two of the most recent surveys recording as high as 81% (Vaucher *et al* 2018 and Plunkett *et al* 2020) and 94% (Alvarez Bustins *et al* 2018) of all presenting patients. Low back and neck related complaints are the most common reasons for seeking care, followed by thoracic spine and complaints relating to the head and face (Table 9).

Pediatric conditions associated with unsettled babies was the second most common presenting problem in several papers being reported in 40-60% of cases seen 'often' or 'very often' by osteopaths (Adams *et al* 2018, van Dun *et al* 2019b, Alvarez Bustin *et al* 2018, Dornieden 2019). The same studies reported obstetrics, gynecological and pregnancy related problems accounted for the third most common presenting patient group at 30 – 45% of cases seen 'often' or 'very often' where reported.

Table 9 Patients' reasons for seeking osteopathic care/specific pain complaint (%)

Country	Author and Year	Lumbar Spine	Cervical Spine	Thoracic spine/ ribs/ chest	Head/Face	Pelvis	Upper Extremity	Lower Extremity	Abdomen
Australia	Adams *et al* 2018*	98.7%	98%	91.7%	Headache 90.1%		Shoulder 81% Elbow 25% Wrist 19% Hand 12%	Hip 75% Knee 50% Ankle 34% Foot 30%	
Belgium-Luxemburg-Netherlands	van Dun *et al* 2016*	90%	86%	63%	57%	81%	68%	Hip 41% Knee 23.5% Ankle/ Foot 19.5%	41%
Canada	Morin & Aubin 2014	14.5%	12.8%	7.1%	9.1%	4.7%	Shoulder 7.9% Upper limb 4%	11%	Visceral 5%
Germany	Dornieden 2019*	96%	97.5%	Upper back 88% Chest 62%	Head 75% Face 19%	85%	88%	Hip/thigh 62% Knee 55% Ankle/ Foot 35%	55.7%
Spain	Alvarez *et al* 2020**	99%	97.5%		Headache 95.5%		Shoulder 64.5%		
	Alvarez *et al* 2018	13%	20%	5%	13%	9%	7%	15%	3%
Switzerland	Vaucher *et al* 2018	19.4%	19.3%		Head 19.5% Headache 11.2%		17.6%	21.7%	Thorax & Abdomen 18.4%
UK	Plunkett *et al* 2020	30%	15%	6%	9%	5%	~6%	~6%	

*Reported as often/very often/always; **Reported as regularly/often/always; LBP – lower back pain

Timescale of complaint

Acute patients represented around a third of patients (mean 35%: range 27 - 45% of patients), over half of osteopathic patients seek care for persistent chronic complaints (mean 50.5%). Sub-acute and chronic conditions made up 64% of complaints (range 52% - 73%) (Table 10).

Table 10 Timescale of complaint %

Country	Author and Year	Chronic	Sub-acute Chronic	Acute
UK	Plunkett *et al* 2012	55% (>12 weeks)	12% (5-12 weeks)	33% (1-4 weeks)
Spain	Alvarez Bustins *et al* 2018	46% (> 6 months)	27% (1-6 months)	27% (< 4 weeks)
Switzerland	Vaucher *et al* 2018	52%	45% (1-4 weeks)	

Osteopathic manual techniques

Osteopathic practitioners use a wide range of techniques depending on their patient type and conditions being treated. Data collected from surveys across the globe show information both in terms of what techniques were popular across geographies and also particular technique preferences and trends within countries.

The techniques used most were articulation and mobilization, soft tissue manipulation (STM) and muscle energy technique (MET). Spinal manipulative technique (SMT) and high velocity thrusts (HVT) were used less frequently (Table 11). The surveys indicate that advice provision on exercise and physical activity, lifestyle, diet, and ergonomics frequently featured as part of the osteopathic consultation (Table 11).

Consultations

Three studies reported information about number of consultations over time. In Switzerland 62% of patients had 1 - 2 consultations per episode, in Spain this figure was 3 and a third of patients had completed their course of care within one month. In the UK, the mean was 7 and mode 4 indicating a wide range for numbers of consultations between patients (Table 12).

Table 11 Osteopathic Techniques used in practice - %

Country, Author and Year	Australia Adams *et al* 2018	BeNeLux van Dun *et al* 2016**	Belgium Luxembourg van Dun *et al* 2019b**	Germany Dornieden 2019	Spain Alvarez *et al* 2020*	Spain Alvarez-Bustins *et al* 2018	Switzerland Vaucher *et al* 2018	UK Plunkett *et al* 2020
Articulation/ Mobilization		62.4	75	71	90.6	60	99	69
Soft Tissue Manipulation	85.7	56.7	40	71	89.2	54.7	75	74
Spinal Manipulation/ HVT	63.8	54.1	45	39	84.8	45.9	40	34
Muscle Energy Technique	79.5	43.5	30	61	78	10.4	35	29
Myofascial Release	61.8	61.1	35	79.5	83.6		22	10
Osteopathy in Cranial Field	23.5	65.3		89	90.1	49.8	52	23
Strain/ Counter-Strain	42.4					15.2	8	5
Functional Technique	27.3	57.6	40	82	92.1	39.9	42	15
Visceral Technique	9.9	72.2	50	84	91.3	28	55	5
Dry Needling /Acupuncture	23.6							1
Exercise /Physical Activity	74	90.4		95/83		7	34.2	57
Lifestyle Advice		95.2		>74		27.7	35.5	70
Dietary		87.9		77.6		4		4
Ergonomic assessment		89		77.5				

Table 12 Consultations

Country	Author and Year	# consultations			Treatment duration (%)		
		1	2	Mean	<1 month	1-3 months	>4 months
UK	Plunkett *et al* 2020			7 (mode 4)			
Spain	Alvarez Bustins *et al* 2018			3	31%	54%	15%
Switzerland	Vaucher *et al* 2018	31.3%	30.4%				

3.4 Patient Profile

Gender

Across all surveys the findings showed that patients seeing osteopaths were more likely to be women than men; Canada 62% were female, Spain 61%, Germany 61%, Switzerland 57%, and the UK 58%. In Belgium, Netherlands and Luxembourg, osteopaths reported that their patients were evenly split between males and females.

Age of patients

Osteopathy patient age profiles showed the majority of patients falling within the working adult category of 20-65 years (mean 49.5%, range 19.6% - 72.45). The number of children, between 0 and 2 years old, represented between 10 and 19.5%, the mean was 16.7% from Germany, Belgium/Netherlands/Luxembourg, Spain, and Switzerland. In the UK 4.8% of patients were between 0 – 1 years old (Table 13). The recorded number of older patients (>65 years) ranged from 9 – 24.3% (mean 15.1%) (Tables 13).

Table 13 Patient Age Profile (% distribution of total within survey)

Country	Author and Year	<6 months	6–24 months	2-10 yrs	11-20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	61-70 yrs	>71 yrs	Mean yrs
Global	OIA 2013 global report	8.7% 0-2 yrs		5.3%	9% 7-18 yrs	16% 19-30 yrs	32% 31-50 yrs		21% 51-70 yrs		9%	NR
Germany	Dornieden 2019*	10.1%	7.1%	6.4%	7.3%	22.1% 21-40 yrs		28.1% 41-65 yrs			17.2% >65 yrs	NR
Belgium-Netherlands Luxembourg	van Dun *et al* 2016 (most likely to treat)	15.6%	3.6%	2.2%	3.1%	32.1%		37% 41- 65 yrs			6.3% >65 yrs	NR
	van Dun *et al* 2019b*	8.7% <1 mth	10.8% 1 mth -2 yrs	10.8% 2 -12 yrs	10.8% 12-18 yrs	21.2% 18-40 yrs		21.4% 40-65 yrs			16.2% >65 yrs	NR
Italy	Cerritelli *et al* 2020 (age most represented)	NR	NR	NR	NR	89.1% 21-40 yrs		92.4% 41-64 yrs			NR	NR
Spain	Alvarez *et al* 2020*	7.8% <1mth:	9.8% 1-24 mths	11.8% 2-6 yrs 15.7% 6-12 yrs	17.6% 12-18 yrs	19.6% 18-65 yrs					17.6% >65 yrs	NR
	Alvarez *et al* 2018	NR	NR	NR	NR	NR					NR	40 yrs
Switzerland	Vaucher *et al* 2018	7.6%	2.4%	2.9%	5.7%	72.4% 21-65 yrs					9% >65 yrs	45 yrs
UK	Plunkett *et al* 2020	4.8% <12 months		13.2% 0-19 yrs old		62.5% 20 – 59 yrs					24.3% >65 yrs	50-59 yrs (mode)

* regularly/often/very often/always - % of total; NR = not reported

Patient employment status

Most patients seeking osteopathic care were employed or self-employed (58-85%) (Table 15).

Table 15 Patient employment status (%)

Country	Author and Year	Full-time employed	Self-employed	Student	Children not in school	Retired	Unemployed/ Home care
Spain	Alvarez *et al* 2018	44	14	17		8	5
Switzerland	Vaucher *et al* 2018	45	13	14	10	8	9
UK	Plunkett *et al* 2020	85					

4. SUMMARY AND CONCLUSIONS

Summary

To summarize, there was very little data about osteopathic physicians, the majority of data we were able to extract was about osteopaths in central Europe, the UK and Australia.

Osteopaths had more available data to describe themselves and their practice. Respondents were 30-50 years old with over eight years of experience working in osteopathy. Osteopath qualifications varied between countries, Australian osteopaths were most likely to have a post graduate degree (Masters or above). Osteopaths in Central Europe and the UK were most likely to work alone most or all of the time (mean 61%), whilst in Australia osteopaths working alone represented 16.3%. Osteopaths regardless of country typically see around 30 patients per week.

Patients were mostly of working age, but we estimate around 10% - 19% of patients seen by osteopaths are young or very young children or infants (between 0 and 2 years old). More females than males seek care from an osteopath (60:40) and most patients seek care for musculoskeletal complaints in the low back and neck area.

Just over half of all patients can get an appointment with an osteopath within one week, and consultations are typically between 30 and 60 minutes. Most patient's route to care is self-referral (79-95%). Osteopaths use a variety of manual techniques and report high frequencies of giving advice and guidance about lifestyle, exercise and activity, diet, and ergonomics.

Comparison with the OIA Global Report 2013

In comparison with the 2013 OIA Global Report, some of the findings are similar but there are some differences.

Working practices

In 2013, 43% of osteopaths reported working on their own, with a further 14.1% reporting they worked with one partner. From our data 61% of central European and UK osteopaths work on their own some or all of the time. Consultation duration remains the same between 30 and 60 minutes.

Patient age profile

The age profile of patients treated by osteopaths has changed. In 2013, 69% of patients were aged between 21 and 70 years old, we found a reduction in this age group to 49.5% (range 19.6% to 72.4%). Conversely, we found an increase in the percentage of children below the age of 2 years, in 2013 this figure was 8.7% compared to 16.7% (range 10% to 19.5%). The recorded number of older patients (>65 years) ranged from 9 – 24.3% with a mean of 15.1% compared to a mean of 9% in 2013.

Patient presentations

The nature of patient presenting complaints, locations (low back and neck pain are the most common) and duration of complaint prior to the consultation (around a third have acute conditions) remain the same as do the types of techniques used to treat patients.

Conclusions

More information is needed to fully describe the global osteopathic profession. In addition to describing osteopathy and osteopathic medicine, we need more information about how patients respond to osteopathic care, what their experiences are and how satisfied they are with the care they receive.

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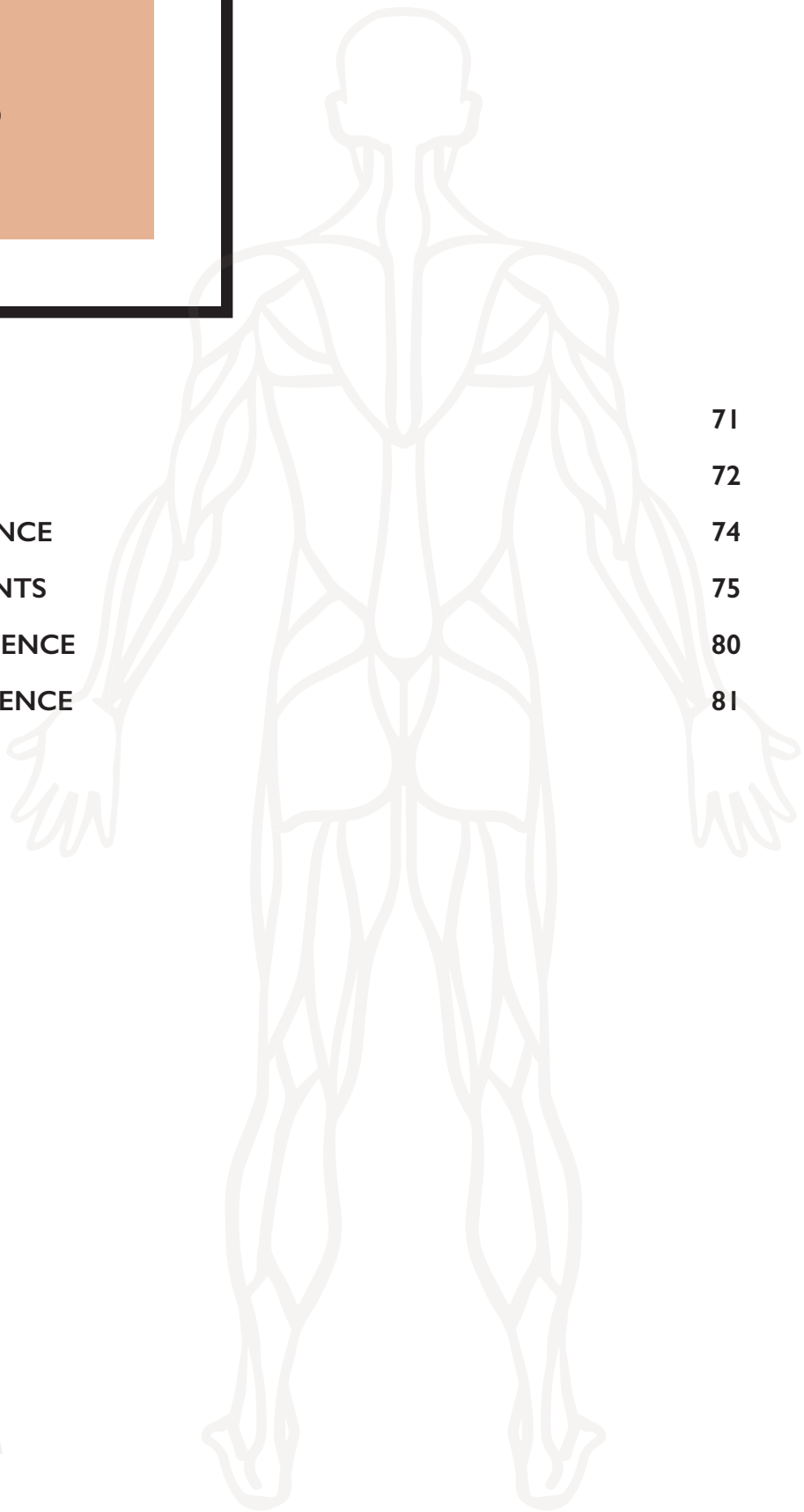
PART 3.

Osteopathy: EVIDENCE AND SAFETY SUMMARY.

SUMMARY

- Evidence about effectiveness and safety of osteopathic care is needed to inform osteopathic clinical practice and decision making. It also helps the wider healthcare community and patients understand the practice of osteopathy.
- Some research is specific to osteopathy and other research whilst not delivered by osteopaths in an osteopathic setting is still relevant to osteopathy.
- Osteopathy is a multi-component therapy consisting of touch, exercise, public health and lifestyle advice, education and psychological reassurance and wellbeing support, research in all these fields has potential relevance to the care osteopaths deliver.
- Research evidence from guidelines and systematic reviews that illustrate moderate positive level of evidence or above, or where the reviews present statistically significant positive benefit is of interest.
- There is a growing positive evidence base of beneficial effects of interventions delivered in a manual therapy setting for pain reduction, function, range of motion and reduction in disability, return to work, quality of life and satisfaction for the following musculoskeletal conditions: low back pain (in adults and children, and for women during and after pregnancy), neck pain, shoulder dysfunctions, hip and knee osteoarthritis, heel pain and pulled elbow in children.
- There is also positive outcome evidence for the treatment of headaches and for length-of-hospital-stay in pre-term infants. There is promising, but less certain evidence, for the treatment of irritable bowel syndrome, lymphatic drainage as part of breast cancer care and infantile colic.
- The evidence presented is from some of the most commonly cited and referenced publications, the list is not exhaustive and is liable to change as more research is published and more findings emerge.
- There is much research information that is inconclusive due to the lack of research rigor and potential risk of bias or that the sample sizes (number of people studied in the research) are too small to enable us to be confident about the findings.

CONTENTS



1. INTRODUCTION

People seek osteopathic care for a variety of reasons and there is sufficient demand for osteopathic care across the world that sustains and drives the global profession forward. There is a need to consider the evidence relevant to osteopathic care to inform clinical practice and decision making and to help the wider healthcare community, patients and the public increase their understand of the practice of osteopathy. Evidence is normally presented in terms of effectiveness (does it work), efficacy (how does it work) and safety (will it harm). Effectiveness is not always a straightforward concept, we must consider effectiveness of what, for what, for whom, when and under what circumstances.

The focus of this report was to consider the evidence about manual therapies and treatments or interventions that have a positive benefit for patients (outcomes) for various conditions. Commonly measured outcomes relate to recovery, pain, function, range of motion, disability, return to work, global change, recurrence, psychological wellbeing, quality of life, experience of care, and satisfaction. Evidence about safety or harm was also considered, the evidence pertaining to the risk of treatment allows clinicians, patients and commissioners of health services to make decisions about care.

Some research was specific to osteopathy and other studies, whilst not undertaken by osteopaths in an osteopathic setting, were still relevant to osteopathy. Practitioners from different manual therapy disciplines share many of the same techniques, such as mobilization, manipulation, muscle energy and soft tissue techniques even though they may be applied in a different way. In addition, osteopathy is a multi-component therapy consisting of touch, exercise, public health and lifestyle advice, education, psychological reassurance, and wellbeing support; research in all these fields has potential relevance to the care osteopaths deliver.

2. APPROACH

The main research evidence presented here was from guidelines and systematic reviews published from 2010 and later. The rationale for this decision was that guidelines and systematic reviews are based on multiple studies and their results are combined to understand the strength of the evidence in terms of quality and level of effectiveness. Information that illustrates moderate positive level of evidence or above or where the reviews present statistically significant positive benefit was of most interest.

High quality or strong evidence yields conclusions that are unlikely to change with more research, as the research is high quality and consistent across studies. Moderate level evidence is less certain and may be liable to change with more research as the evidence may be of mixed quality and, or with some mixed results but mostly positive and or statistically significant favorable results.

The evidence presented is from some of the most commonly cited and referenced publications. The list is not exhaustive and is liable to change as further research is published and more findings emerge. There was much research information that was inconclusive due to the lack of research rigor, potential risk of bias, or that sample sizes (number of people studied in the research) are too small to enable us to be confident about the findings.

3. OUTCOME RELATED EVIDENCE

There is a growing positive evidence base of beneficial effects of interventions delivered by manual therapists including osteopaths for pain reduction, function, range of motion and reduction in disability, return to work, quality of life, experience, and satisfaction for the following musculoskeletal conditions: low back pain (in adults and children, and for women during and after pregnancy), neck pain, shoulder dysfunctions, hip and knee osteoarthritis, heel pain and pulled elbow in children. There is also positive outcome evidence for the treatment of headaches and for length of hospital stay in pre-term infants. There is promising but less certain evidence for the treatment of irritable bowel syndrome, lymphatic drainage as part of breast cancer care and infantile colic (See Table 1).

Table 1. Evidence summary of beneficial effects with manual therapy (varied between manipulation, mobilization, soft tissue manipulation, muscle energy techniques and combinations) (Shaded orange areas indicate a positive moderate to strong evidence base, blue boxes indicate moderate to low quality evidence)

Condition (with positive and or moderate level evidence or higher)	Pain reduction	Function/ ROM*/ disability	Return to work	Quality of life	Satisfaction with care	Other
Adult low back pain						Coordination
Pediatric low back pain						
Pregnancy related low back, pelvic pain						
Post-partum low back and pelvic pain						
Neck pain						
Headaches						
Shoulder dysfunctions						
Elbow pain						
Hip osteoarthritis						
Knee osteoarthritis						
Heel pain (plantar fasciitis)						
Infantile colic						Reduction in crying time
Infant pulled elbow						
Preterm infants						Length of hospital stay
Breast cancer care (upper extremity lymphatic drainage)						
Irritable bowel syndrome						

Pain reduction

The main reason people seek osteopathic care is because they have pain (OIA Global Report 2013). For research purposes, pain is often classified as acute, sub-acute (present from 6 – 12 weeks) and chronic or persistent (present for 13 weeks or more) and distinguished by traumatic or non-traumatic onset. Pain is a complex phenomenon and can be modulated by both the peripheral and central nervous systems, the emotional centers of the brain. Therefore, both manual and non-manual components of care may impact on outcome (Estevez *et al* 2020).

There is a good level of evidence to support the use of manual therapy in the treatment and management of low back pain. This is reflected in guidance from the UK where manual therapy is recommended as part of a package of care and in Europe and the USA for non-specific acute, sub-acute and chronic low back pain and sciatica.

In addition, a number of other studies have shown pain reduction outcomes for the treatment of neck pain, non-spinal joints (shoulders, hips, knees, feet, elbows) and for headaches and Irritable Bowel Syndrome.

Function, range of movement and reducing disability

Function has been shown to be more, or equally as important as pain in patient outcome expectations (Carnes, Ashby Underwood 2007). Functional ability - that is, the ability to do a task - is a key determinant of a successful outcome for patients, often meaning that patients can return to work or manage everyday tasks of daily living. Proxy indicators of function are 'range of movement,' reduced disability, improvement, days off sick and return to work. Evidence of benefit and/or improvement of function and/or range of movement has been shown for the low back pain, neck pain and shoulder dysfunction, hip and knee osteoarthritis, heel pain, for those with headaches, and for upper limb mobility with lymphatic drainage as part of breast cancer care.

Return to work

We only found evidence for expedited return to work for those with low back pain who have received manual therapy as part of a package of care (NICE 2016).

Quality of life, satisfaction with care and other outcomes

There is evidence of positive effect on quality of life with treatment for post-partum low back pain, neck pain and headaches and satisfaction with care specifically for treatment for neck pain and headache. Some positive evidence has been cited for reduced crying time after treatment for infants with colic and for reducing length of hospital stay for pre-term infants (Lanaro *et al* 2017).

4. SAFETY AND ADVERSE EVENTS

Five reviews published since 2010 have concluded that the risks of serious adverse events with manual therapy is very low (Carnes *et al* 2010, Clar *et al* 2014, Dreihuis *et al* 2019, Paige *et al* 2017, Rubinstein *et al* 2019). However, around half of patients may experience mild transient aches and soreness after treatment.

5. CONDITION RELATED EVIDENCE

The most compelling evidence is found for the treatment of low back pain, neck pain, headaches, shoulder and peripheral joints disorders.

Low back pain

One of the most common painful conditions is low back pain (WHO 2012). Manual therapy, including that given by osteopaths, is recommended in the UK by the National Institute of Health and Clinical Excellence to reduce symptoms including pain as part of a package of care for acute, sub-acute and chronic low back pain and sciatica (NICE 2016). Spinal manipulation is recommended by the US American College of Physicians and the American Pain Society (Chou *et al* 2007) and in the European Union Guidelines on Low Back Pain (Airaksinen *et al* 2006) for acute non resolving low back pain and chronic low back pain. The Scottish National Guidance for chronic pain also recommends that manual therapy should be considered for short-term relief of pain for patients with chronic low back pain (SIGN 2013). Recommendations in guidelines are usually based on high quality randomized controlled trials evidence of effectiveness and expert opinion and consensus. Table 2 shows that there is considerable evidence of benefit for manipulation, mobilization and soft tissue manual techniques of beneficial effects for pain and function/range of movement. A summary of evidence for different manual therapy techniques and outcomes is shown in Table 2.

Table 2. Low Back Pain: Evidence of benefit

Intervention	Pain	Function, disability, range of movement	Return to Work	Coordination
Spinal manipulation	1,2,3,4,5*,6,7,8,10	1,3,5*,6,8,10	5*	1
Mobilization	1, 2, 3, 5*, 10	1, 3, 5*, 10	5*	1
Muscle energy technique	9	9		
Osteopathic care	11	11		
Soft tissue / Massage	5*,6,7	5*	5*	

1. American Physical Therapy Association 2012, 2. Brontfort *et al* 2010, 3. Coulter *et al* 2018, 4. Furlan *et al* 2012, 5.* NICE UK 2016 (As part of a package of care), 6. Paige *et al* 2017, 7. Qaseem *et al* 2017, 8. Rubinstein 2019, 9. Thomas *et al* 2019, 10. USA Department of Veterans Affairs 2017, 11. Verhaeghe *et al* 2018

Neck pain

A number of guidelines and reviews recommend manual therapy (including spinal manipulation and mobilization) and exercise, as a treatment for patients with neck pain for the reduction of pain and disability and improvement in function and or range of movement.

Table 3. Neck Pain: Evidence of benefit

Intervention	Pain	Function, disability, range of movement	Satisfaction	Quality of life
Spinal manipulation	1,2,4, 6,7	1,2,4,7		
Mobilization	1,2, 4, 6, 7	1,2, 4,7	7	
Manual therapy	3,5,10			
Manual therapy with Exercise	1, 8	1, 8		8
Muscle energy technique	9			
Soft tissue massage	6			

1. American Physical Therapy Association 2016, 2. Brontfort *et al* 2010, 3. Coté *et al* 2019, 4. Coulter *et al* 2019, 5. Franke *et al* 2017, 6. Furlan *et al* 2012, 7. Gross *et al* 2010, 8. Miller *et al* 2010, 9. Thomas *et al* 2019, 10. Vincent *et al* 2013

Headaches

Moderate quality evidence shows that manual therapies have a beneficial outcome for pain and function, including improvement in range of movement and reduction in disability (Table 4).

Table 4. Evidence of benefit for headaches

Intervention	Pain	Function, disability, range of movement	Quality of life
Spinal manipulation	1,2,5,8, 10	1,2,8	
Mobilization	1,2,5,8	1,2,8	
Osteopathic manual therapy	4		
Manual therapy	3,9,11	3	3,9
Manual therapy with exercise	7		

1. American Physical Therapy Association 2017, 2. Brontfort *et al* 2010, 3. Cumplido-Trasmonte *et al* 2017, 4. Cerritelli *et al* 2017, 5. Chaibi *et al* 2017, 6. Clar *et al* 2014, 7. Coté *et al* 2019, 8. Coulter *et al* 2019, 9. Falsiroli *et al* 2019, 10. Fernandez *et al* 2020, 11. Yaseen al 2018

Shoulder pain and dysfunction

There are many reasons for shoulder pain and shoulder dysfunction, the main disorders investigated are adhesive capsulitis (frozen shoulder) and rotator cuff dysfunction. Studies investigating the effects of manual therapies, particularly mobilization, stretching in combination with exercise indicate beneficial effects for pain and function (Table 5).

Table 5. Evidence of benefit for shoulder pain/dysfunction

Intervention	Pain	Function, disability range of movement
Mobilization	1,2	1,2
Stretching and exercise	1,2	1,2
Manual therapy with exercise	1,2	1,2

1. American Physical Therapy Association 2014, 2. Clar *et al* 2014

Extremity joint pain

Table 6. Extremity joint pain

Condition	Intervention	Pain	Function, disability, range of movement
Elbow pain	Mobilization and exercise	1	1
Hip osteoarthritis	Manipulation and mobilization	1	1
Knee osteoarthritis / patellofemoral pain syndrome	Manipulation, mobilization and exercise	1	1
Heel pain / plantar fasciitis	Manipulation, mobilization, exercise and soft tissue	1, 3 2	1, 3

1. Brontfort *et al* 2010, 2. Pollack *et al* 2018, 3. Clar *et al* 2014

Pediatric Care

There is moderate to high quality evidence to show benefit of osteopathic treatment for pre-term infants on length of hospital stay (Parnell *et al* 2019, Lanaro *et al* 2017) and low to moderate quality evidence of benefit of manual therapy-based treatment for infants with 'colic' for reducing crying time (Carnes *et al* 2018). In addition, one review indicates some evidence of effectiveness for 'pulled elbow' in children and for low back pain in school age children (Table 7). Only low-quality evidence exists for most other manual therapy-based treatment for infants and children therefore no conclusions can be made about effectiveness.

Table 7. Evidence of benefit for pediatric care

Condition	Intervention	Pain/ Recovery	Reduced crying time	Length of hospital stay
Infantile colic	Manual therapy		1	
Low back pain	Manual therapy	2		
Pulled elbow	Manual therapy	2		
Premature infants	Osteopathic manual treatment			2,3

1. Carnes *et al* 2018, 2. Parnell *et al* 2019, 3. Lanaro *et al* 2017

Women's Health

Pregnant and postpartum women

There is low-to-moderate quality evidence that supports osteopathic manual treatment for pelvic, girdle and low back pain during pregnancy and postpartum. This could be attributed to non-specific effects as when manual therapy was compared to sham it was not superior but when manual therapy was compared to usual care or relaxation it was superior (Table 8).

Table 8. Evidence of benefit for low back pain during and after pregnancy

Condition	Intervention	Pain	Function
Low back pain during pregnancy	Osteopathic manipulative treatment	1,2,3	1
	Manual therapy, exercise, and education	4	4
Low back pain post-partum	Osteopathic manipulative treatment	1	1

1. Franke *et al* 2017, 2. Hall *et al* 2016, 3. Ruffini *et al* 2016, 4. van Benton *et al* 2014

5. PROMISING AREAS OF EVIDENCE

Breast cancer care

Promising evidence exists for the use of manual therapy post breast cancer surgery. One study indicated that soft tissue massage therapy as an adjunctive therapy as part of a package of breast cancer care for shoulder and upper limb function was beneficial post-surgery for upper limb function (Clar *et al* 2014). A further study showed that there was some additional benefit to including manual therapy with upper limb compression bandaging for lymphatic drainage management (Ezzo *et al* 2015).

Irritable Bowel Syndrome (IBS)

One review of osteopathic care for the treatment of IBS indicated that whilst the scientific quality of studies was limited there was enough combined data to indicate some potential benefit of osteopathic care for pain and function for those with IBS (Muller *et al* 2014).

6. CONCLUSIONS

Overall, the research field for effectiveness is encouraging and the risks of harm are low for manual therapy care. There will be further emerging evidence in the future as the research intensifies in this field and more pooling of results are done. There is growing acknowledgment that the active components of care may be multiple, and that manual therapy is more than just hands-on care and has contextual active elements of benefit.

Osteopaths deliver a multicomponent package of care that, in addition to manual therapy, includes: health examination, screening and diagnosis and, where appropriate, referral, advice and guidance, reassurance, psychological support, self-management, general health guidance and behavior change encouragement for healthier lifestyles.

More research and novel research methods are needed to explore effects and outcomes that are important to patients. This may include placing more emphasis on some of the 'softer' outcomes of care such as quality of life, satisfaction, and experience of care for healthier lives and better wellbeing.

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Paige NM, Miake-Lye IM, Booth MS, *et al.* Association of Spinal Manipulative Therapy With Clinical Benefit and Harm for Acute Low Back Pain: Systematic Review and Meta-analysis JAMA. 2017;317(14):1451-1460. doi:10.1001/jama.2017.3086

Parnell Prevost C, Gleberzon B, Carleo B, Anderson K, Cark M, Pohlman KA. Manual therapy for the pediatric population: a systematic review. BMC Complement Altern Med. 2019;19(1):60. Published 2019 Mar 13. doi:10.1186/s12906-019-2447-2

Pollack Y, Shashua A, Kalichman L. Manual therapy for plantar heel pain. Foot (Edinb). 2018;34:11-16. doi:10.1016/j.foot.2017.08.001

Qaseem A, Wilt TJ, McLean RM, Forciea MA; Clinical Guidelines Committee of the American College of Physicians. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians. Ann Intern Med. 2017;166(7):514-530.

Rubinstein S, de Zoete A, van Middelkoop M, Assendelft WJJ, de Boer MR,

van Tulder MW. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomized controlled trials. BMJ. 2019; 364: l689. doi: 10.1136/bmj.l689

Ruffini N, D'Alessandro G, Cardinali L, Frondaroli F, Cerritelli F. Osteopathic manipulative treatment in gynecology and obstetrics: A systematic review. Complement Ther Med. 2016;26:72-78. doi:10.1016/j.ctim.2016.03.005

Thomas E, Cavallaro A.R, Mani D. *et al.* The efficacy of muscle energy techniques in symptomatic and asymptomatic subjects: a systematic review. Chiropr Man Therap 27, 35 (2019). https://doi.org/10.1186/s12998-019-0258-7

USA Department of Veterans Affairs. Clinical Guidance for the diagnosis and treatment of low back pain Sept 2017. https://www.guidelinecentral.com/share/summary/5ac2fc58a3e7a#section-420

van Benten E, Pool J, Mens J, Pool-Goudzwaard A. Recommendations for physical therapists on the treatment of lumbopelvic pain during pregnancy: a systematic review. J Orthop Sports Phys Ther. 2014;44(7):464-A15. doi:10.2519/jospt.2014.5098

Verhaeghe N, Schepers J, van Dun P, Annemans L. Osteopathic care for spinal complaints: A systematic literature review. PLOS ONE 2018 13(11): e0206284. https://doi.org/10.1371/journal.pone.0206284

Vincent K, Maigne JY, Fischhoff C, Lanlo O, Dagenais S. Systematic review of manual therapies for nonspecific neck pain. Joint Bone Spine. 2013;80(5):508-515. doi:10.1016/j.jbspin.2012.10.006

World Health Organization. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study2010.Lancet, 2012, 380(9859):2163-96. doi: 10.1016/S0140-6736(12)61729-2

Yaseen K, Hendrick P, Ismail A, Felemban M, Alshehri MA. The effectiveness of manual therapy in treating cervicogenic dizziness: a systematic review. J Phys Ther Sci. 2018;30(1):96-102. doi:10.1589/jpts.30.96

Article	Conclusions
Low Back Pain	
American Physical Therapy Association. Guideline for the diagnosis and treatment of low back pain. 2012. https://www.guidelinecentral.com/share/summary/52d56300204e0#section-society	Strong level of evidence supporting Manual Therapy for low back pain and back related buttock or thigh pain. Recommend: Thrust manipulative procedures to reduce pain and disability. Thrust manipulative and non-thrust mobilization procedures to improve spine and hip mobility and reduce pain and disability. Trunk Coordination, Strengthening, and Endurance Exercises to reduce low back pain and disability in patients with sub-acute and chronic low back pain with movement coordination impairments and in patients post–lumbar microdiscectomy.
Bronfort G, Haas M, Evans, R Leininger B, Triano J. Effectiveness of manual therapies: the UK evidence report. Chiropr Osteopat 2010 Feb 25;18:3. doi: 10.1186/1746-1340-18-3.	Spinal manipulation/mobilization is effective in adults for: acute, sub-acute, and chronic low back pain.
Coulter ID, Crawford C, Hurwitz EL, Vernon H, Khorsan R, Booth MS, Herman PM. Manipulation and Mobilization for Treating Chronic Low Back Pain: A Systematic Review and Meta-Analysis. Spine J 2018 May;18(5):866-879. doi: 10.1016/j.spinee.2018.01.013. Epub 2018 Jan 31.	There is moderate-quality evidence that manipulation and mobilization are likely to reduce pain and improve function for patients with chronic low back pain; manipulation appears to produce a larger effect than mobilization. Both therapies appear safe. Multimodal programs may be a promising option.
Furlan AD, Yazdi F, Tsertsvadze A, *et al.* A systematic review and meta-analysis of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low-back pain. Evid Based Complement Alternat Med. 2012;2012:953139. doi:10.1155/2012/953139	Manipulation and mobilization effectiveness is variable depending on symptom duration, outcome, comparator, whether there is exercise or general practitioner care and follow-up period. Although this variability can be considered as 'inconsistent findings,' the overall evidence suggests that manipulation and mobilization are an effective treatment modality compared to no treatment, placebo, physical therapy, or usual care in reducing pain immediately or at short-term after treatment for low back and neck pain.
National Institute of Health and Clinical Excellence (NICE) UK. Low back pain and sciatica in over 16s: assessment and management. NICE guideline [NG59] 30 November 2016. https://www.nice.org.uk/guidance/ng59	Provide people with advice and information, tailored to their needs and capabilities, to help them self-manage their low back pain with or without sciatica, at all steps of the treatment pathway. Consider a group exercise program (biomechanical, aerobic, mind–body or a combination of approaches). Consider manual therapy (spinal manipulation, mobilization or soft tissue techniques such as massage) as part of a treatment package including exercise, with or without psychological therapy. Consider psychological therapies using a cognitive behavioral approach as part of a treatment package including exercise, with or without manual therapy (spinal manipulation, mobilization or soft tissue techniques such as massage). Consider a combined physical and psychological program. Promote and facilitate return to work or normal activities of daily living.

Paige NM, Miake-Lye IM, Booth MS, *et al.* Association of Spinal Manipulative Therapy With Clinical Benefit and Harm for Acute Low Back Pain: Systematic Review and Meta-analysis JAMA. 2017;317(14):1451-1460. doi:10.1001/jama.2017.3086	In this systematic review and meta-analysis of 26 randomized clinical trials, spinal manipulative therapy was associated with statistically significant benefits in both pain and function, of on average modest magnitude, at up to 6 weeks. Minor transient adverse events such as increased pain, muscle stiffness, and headache were reported in more than half of patients in the large case series. Meaning: Among patients with acute low back pain, spinal manipulative therapy was associated with modest improvements in pain and function and with transient minor musculoskeletal harms.
Qaseem A, Wilt TJ, McLean RM, Forciea MA; Clinical Guidelines Committee of the American College of Physicians. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians. Ann Intern Med. 2017;166(7):514-530.	Recommendation 1: Given that most patients with acute or subacute low back pain improve over time regardless of treatment, clinicians and patients should select non-pharmacologic treatment with superficial heat (moderate-quality evidence), massage, acupuncture, or spinal manipulation (low-quality evidence). Recommendation 2: For patients with chronic low back pain, clinicians and patients should initially select non-pharmacologic treatment with exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction (moderate-quality evidence), tai chi, yoga, motor control exercise, progressive relaxation, electromyography biofeedback, low-level laser therapy, operant therapy, cognitive behavioral therapy, or spinal manipulation (low-quality evidence). (Grade: strong recommendation).
Rubinstein S, de Zoete A, van Middelkoop M, Assendelft WJJ, de Boer MR, van Tulder MW. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomized controlled trials. BMJ. 2019; 364: l689. doi: 10.1136/bmj.l689	SMT as good as other recommended treatment and better than non-recommended treatment for function and pain.
Thomas E, Cavallaro A.R, Mani D. *et al.* The efficacy of muscle energy techniques in symptomatic and asymptomatic subjects: a systematic review. Chiropr Man Therap 27, 35 (2019). https://doi.org/10.1186/s12998-019-0258-7	MET are effective in improving reported pain, disability, and joint range of motion in both asymptomatic subjects and symptomatic patients. The studies evaluated in this review have provided evidence that MET are specifically effective for alleviating chronic pain of the lower back and neck and chronic lateral epicondylitis. There is also evidence supporting MET as a beneficial therapy for reducing acute lower back pain and improving the related disability indexes. However, further evidence is needed to confirm MET as an effective treatment for plantar fasciitis and other musculoskeletal disorders. A definitive protocol for MET application, due to the heterogeneity of the results, could not be identified, and a future evaluation of the parameters of MET prescription is suggested.
USA Department of Veterans Affairs. Clinical Guidance for the diagnosis and treatment of low back pain Sept 2017. https://www.guidelinecentral.com/share/summary/5ac2fc58a3e7a#section-420	For patients with chronic low back pain, the Work Group suggests offering clinician-directed exercises. For patients with acute or chronic low back pain, the Work Group suggests offering spinal mobilization/manipulation as part of a multimodal program.
Verhaeghe N, Schepers J, van Dun P, Annemans L. Osteopathic care for spinal complaints: A systematic literature review. PLOS ONE 2018 13(11): e0206284. https://doi.org/10.1371/journal.pone.0206284	In conclusion, there is some evidence suggesting that osteopathic care may be effective for people suffering from spinal complaints.

Neck Pain	
American Physical Therapy Association Guideline for the diagnosis and treatment of neck pain. 2017. https://www.guidelinecentral.com/share/summary/5a5d86f293537#section-420	Manual manipulation, mobilization and exercise and advice (moderate to weak) for benefits to pain and disability/function: Neck Pain with Mobility Deficits. Neck Pain with Movement Coordination Impairments Neck Pain with Headaches Neck Pain with Radiating Pain
Bronfort G, Haas M, Evans, R Leininger B, Triano J. Effectiveness of manual therapies: the UK evidence report. Chiropr Osteopat 2010 Feb 25;18:3. doi: 10.1186/1746-1340-18-3.	Thoracic manipulation/mobilization is effective for acute/sub-acute neck pain. Outcomes improved pain and range of movement,
Côté P, Yu H, Shearer HM, *et al.* Non-pharmacological management of persistent headaches associated with neck pain: A clinical practice guideline from the Ontario protocol for traffic injury management (OPTIMa) collaboration. Eur J Pain. 2019;23(6):1051-1070. doi:10.1002/ejp.1374 F	Neck pain and headaches are very common co-morbidities in the population. Tension-type and cervicogenic headaches can be treated effectively with specific exercises. Manual therapy can be considered as an adjunct therapy to exercise to treat patients with cervicogenic headaches. The management of tension-type and cervicogenic headaches should be patient-centered.
Coulter ID, Crawford C, Vernon H, *et al.* Manipulation and Mobilization for Treating Chronic Nonspecific Neck Pain: A Systematic Review and Meta-Analysis for an Appropriateness Panel. Pain Physician. 2019;22(2):E55-E70.	Studies published since January 2000 provide low-moderate quality evidence that various types of manipulation and/or mobilization will reduce pain and improve function for chronic nonspecific neck pain compared to other interventions. It appears that multimodal approaches, in which multiple treatment approaches are integrated, might have the greatest potential impact. The studies comparing to no treatment or sham were mostly testing the effect of a single dose, which may or may not be helpful to inform practice. According to the published trials reviewed, manipulation and mobilization appear safe. However, given the low rate of serious adverse events, other types of studies with much larger sample sizes would be required to fully describe the safety of manipulation and/or mobilization for nonspecific chronic neck pain.
Franke H, Franke JD, Fryer G. Osteopathic manipulative treatment for chronic nonspecific neck pain: A systematic review and meta-analysis' International Journal of Osteopathic Medicine 2015 Dec;18 (4):255–267 https://doi.org/10.1016/j.ijosm.2015.05.003	The 3 reviewed studies had low risk of bias. Moderate-quality evidence suggested OMT had a significant and clinically relevant effect on pain relief (MD: −13.04, 95% CI: −20.64 to −5.44) in chronic nonspecific neck pain, and moderate-quality evidence suggested a non-significant difference in favor of OMT for functional status (SMD: −0.38, 95% CI: −0.88 to 0.11). No serious adverse events were reported.
Furlan AD, Yazdi F, Tsertsvadze A, *et al.* A systematic review and meta-analysis of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low-back pain. Evid Based Complement Alternat Med. 2012;2012:953139. doi:10.1155/2012/953139	Manipulation and mobilization effectiveness is variable depending on symptom duration, outcome, comparator, whether there is exercise or general practitioner care and follow-up period. Although this variability can be considered as 'inconsistent findings,' the overall evidence suggests that manipulation and mobilization are an effective treatment modality compared to no treatment, placebo, physical therapy, or usual care in reducing pain immediately or at short-term after treatment for low back and neck pain.
Gross A, Miller J, D'Sylva J, *et al.* Manipulation or mobilization for neck pain: a Cochrane Review. Man Ther. 2010;15(4):315-333. doi:10.1016/j.math.2010.04.002	Moderate quality evidence showed cervical manipulation and mobilization produced similar effects on pain, function, and patient satisfaction at intermediate-term follow-up. Low quality evidence suggested cervical manipulation may provide greater short-term pain relief than a control (pSMD -0.90 (95%CI: -1.78 to -0.02)). Low quality evidence also supported thoracic manipulation for pain reduction (NNT 7; 46.6% treatment advantage) and increased function (NNT 5; 40.6% treatment advantage) in acute pain and immediate pain reduction in chronic neck pain (NNT 5; 29% treatment advantage). Optimal technique and dose need to be determined.

Miller J, Gross A, D'Sylva J, *et al.* Manual therapy and exercise for neck pain: A systematic review [published online ahead of print, 2010 Jun 1]. Man Ther. 2010;doi:10.1016/j.math.2010.02.007	Of 17 randomized controlled trials included, 29% had a low risk of bias. Low quality evidence suggests clinically important long-term improvements in pain (pSMD-0.87(95% CI:-1.69,-0.06)), function/disability, and global perceived effect when manual therapy and exercise are compared to no treatment. High quality evidence suggests greater short-term pain relief [pSMD-0.50(95% CI:-0.76,-0.24)] than exercise alone, but no long-term differences across multiple outcomes for (sub)acute/chronic neck pain with or without cervicogenic headache. Moderate quality evidence supports this treatment combination for pain reduction and improved quality of life over manual therapy alone for chronic neck pain; and suggests greater short-term pain reduction when compared to traditional care for acute whiplash. Evidence regarding radiculopathy was sparse.
Thomas E, Cavallaro A.R, Mani D. *et al.* The efficacy of muscle energy techniques in symptomatic and asymptomatic subjects: a systematic review. Chiropr Man Therap 27, 35 (2019). https://doi.org/10.1186/s12998-019-0258-7	MET are effective in improving reported pain, disability, and joint range of motion in both asymptomatic subjects and symptomatic patients. The studies evaluated in this review have provided evidence that MET are specifically effective for alleviating chronic pain of the lower back and neck and chronic lateral epicondylitis. There is also evidence supporting MET as a beneficial therapy for reducing acute lower back pain and improving the related disability indexes. However, further evidence is needed to confirm MET as an effective treatment for plantar fasciitis and other musculoskeletal disorders. A definitive protocol for MET application, due to the heterogeneity of the results, could not be identified, and a future evaluation of the parameters of MET prescription is suggested.
Vincent K, Maigne JY, Fischhoff C, Lanlo O, Dagenais S. Systematic review of manual therapies for nonspecific neck pain. Joint Bone Spine. 2013;80(5):508-515. doi:10.1016/j.jbspin.2012.10.006	Manual therapies contribute usefully to the management of nonspecific neck pain. The level of evidence is moderate for short-term effects of upper thoracic manipulation in acute neck pain, limited for long-term effects of neck manipulation, and limited for all techniques and follow-up durations in chronic neck pain.

Headaches

American Physical Therapy Association Guideline for the diagnosis and treatment of neck pain. 2017. https://www.guidelinecentral.com/share/summary/5a5d86f293537#section-420	Manual manipulation, mobilization and exercise and advice (moderate to weak) for benefits to pain and disability/function: Neck Pain with Headaches
Bronfort G, Haas M, Evans, R Leininger B, Triano J. Effectiveness of manual therapies: the UK evidence report. Chiropr Osteopat 2010 Feb 25;18:3. doi: 10.1186/1746-1340-18-3.	Spinal manipulation/mobilization is effective in adults for: migraine and cervicogenic headache; cervicogenic dizziness. Outcomes improved: pain and function
Cerritelli F, Lacorte E, Ruffini N, Vanacore N. Osteopathy for primary headache patients: a systematic review. J Pain Res. 2017;10:601-611. Published 2017 Mar 14. doi:10.2147/JPR.S130501	The results from this systematic review show a preliminary low level of evidence that OMT is effective in the management of headache. However, studies with more rigorous designs and methodology are needed to strengthen this evidence. Moreover, this review suggests that new manual interventions for the treatment of acute migraine are available and developing.
Chaibi A, Russell MB Manual therapies for cervicogenic headache: a systematic review. Journal of Headache Pain. 2012; 13(5):351-359	A total of seven RCTs were identified, i.e. one study applied physiotherapy ± temporomandibular mobilization techniques and six studies applied cervical spinal manipulative therapy (SMT). The RCTs suggest that physiotherapy and SMT might be an effective treatment in the management of CEH, but the results are difficult to evaluate, since only one study included a control group that did not receive treatment

Clar, C., Tsertsvadze, A., Court, R. *et al.* Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. Chiropr Man Therap 22, 12 (2014). https://doi.org/10.1186/2045-709X-22-12	Moderate evidence ratings for spinal mobilization for cervicogenic headache and mobilization for miscellaneous headache.
Côté P, Yu H, Shearer HM, *et al.* Non-pharmacological management of persistent headaches associated with neck pain: A clinical practice guideline from the Ontario protocol for traffic injury management (OPTIMa) collaboration. Eur J Pain. 2019;23(6):1051-1070. doi:10.1002/ejp.1374 F	Neck pain and headaches are very common co-morbidities in the population. Tension-type and cervicogenic headaches can be treated effectively with specific exercises. Manual therapy can be considered as an adjunct therapy to exercise to treat patients with cervicogenic headaches. The management of tension-type and cervicogenic headaches should be patient-centered.
Coulter ID, Crawford C, Vernon H, *et al.* Manipulation and Mobilization for Treating Chronic Nonspecific Neck Pain: A Systematic Review and Meta-Analysis for an Appropriateness Panel. Pain Physician. 2019;22(2):E55-E70.	Studies published since January 2000 provide low-moderate quality evidence that various types of manipulation and/or mobilization will reduce pain and improve function for chronic nonspecific neck pain compared to other interventions. It appears that multimodal approaches, in which multiple treatment approaches are integrated, might have the greatest potential impact. The studies comparing to no treatment or sham were mostly testing the effect of a single dose, which may or may not be helpful to inform practice. According to the published trials reviewed, manipulation and mobilization appear safe. However, given the low rate of serious adverse events, other types of studies with much larger sample sizes would be required to fully describe the safety of manipulation and/or mobilization for nonspecific chronic neck pain.
Falsiroli Maistrello L, Rafanelli M, Turolla A. Manual Therapy and Quality of Life in People with Headache: Systematic Review and Meta-analysis of Randomized Controlled Trials. Curr Pain Headache Rep. 2019;23(10):78. Published 2019 Aug 10. doi:10.1007/s11916-019-0815-8	We identified a total of 10 RCTs, 7 of which were included into the meta-analysis. For HIT-6 scale, meta-analysis showed statistically significant differences in favor to manual therapy both after treatment (mean difference (MD) - 3.67; 95% CI from - 5.71 to - 1.63) and at follow-up (MD - 2.47; 95% CI from - 3.27 to - 1.68). For HDI scale, meta-analysis showed statistically significant differences in favor to manual therapy both after treatment (MD - 4.01; 95% CI from - 5.82 to - 2.20) and at follow-up (MD - 5.62; 95% CI from - 10.69 to - 0.54). Other scales provided inconclusive results. Manual therapy should be considered as an effective approach in improving the quality of life in patients with TTH and MH, while in patients with CGH, the results were inconsistent. Those positive results should be considered with caution due to the very low level of evidence.
Cumplido-Trasmonte C, Fernández-González P, Alguacil-Diego IM, Molina-Rueda F. Manual therapy in adults with tension-type headache: A systematic review Neurologia. 2018;S0213-4853(18)30013-6. doi:10.1016/j.nrl.2017.12.004	Manual therapy has positive effects on pain intensity, pain frequency, disability, overall impact, quality of life, and cranio cervical range of motion in adults with tension-type headache. None of the techniques was found to be superior to the others; combining different techniques seems to be the most effective approach.
Fernandez, M, Moore, C, Tan, J, *et al.* Spinal manipulation for the management of cervicogenic headache: A systematic review and meta-analysis. Eur J Pain. 2020; 00: 1– 16. https://doi.org/10.1002/ejp.1632	Seven trials: Short-term, significant, small effect favoring SMT for pain intensity (mean difference [MD] −10.88 [95% CI, −17.94, −3.82]) and small effects for pain frequency (standardized mean difference [SMD] −0.35 [95% CI, −0.66, −0.04]). There was no effect for pain duration (SMD − 0.08 [95% CI, −0.47, 0.32]). There was a significant, small effect favoring SMT for disability (MD − 13.31 [95% CI, −18.07, −8.56]). For CGHA, SMT provides small, superior short-term benefits for pain intensity, frequency and disability, but not pain duration, however, high-quality evidence in this field is lacking. The long-term impact is not significant.

Yaseen K, Hendrick P, Ismail A, Felemban M, Alshehri MA. The effectiveness of manual therapy in treating cervicogenic dizziness: a systematic review. J Phys Ther Sci. 2018;30(1):96-102. doi:10.1589/jpts.30.96	Three out of the four articles were deemed to have high methodological quality, while the fourth was rated as moderate quality. The attributed level of evidence was moderate (level 2). [Conclusion] Manual therapy is potentially effective for managing cervicogenic dizziness. Further research is recommended to provide conclusive evidence.
Shoulder Dysfunction	
American Physical Therapy Association. Shoulder pain and mobility deficits: adhesive capsulitis: clinical practice guidelines 2014. https://www.guidelinecentral.com/share/summary/535eab230c8e4#section-420	Weak level of evidence for: Joint Mobilization primarily directed to the glenohumeral joint to reduce pain and increase motion and function in patients with adhesive capsulitis. Moderate level of evidence for: Stretching Exercises with adhesive capsulitis.
Clar C, Tsertsvadze A, Court R. *et al.* Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. Chiropr Man Therap 22, 12 (2014). https://doi.org/10.1186/2045-709X-22-12	Moderate (positive) evidence for use of manual therapy combined with exercise in the treatment of rotator cuff disorders (change from inconclusive (favorable) evidence in UK evidence report). Outcomes: pain range of movement and function.
Pediatrics	
Carnes D, Plunkett A, Ellwood J, *et al* Manual therapy for unsettled, distressed and excessively crying infants: a systematic review and meta-analyses BMJ Open 2018;8:e019040. doi: 10.1136/bmjopen-2017-019040	We found moderate strength evidence for the effectiveness of manual therapy on: reduction in crying time (favorable: −1.27 hours per day (95% CI −2.19 to –0.36)), sleep (inconclusive), parent–child relations (inconclusive) and global improvement (no effect). The risk of reported adverse events was low: seven non-serious events per 1000 infants exposed to manual therapy (n=1308) and 110 per 1000 in those not exposed.
Parnell Prevost C, Gleberzon B, Carleo B, Anderson K, Cark M, Pohlman KA. Manual therapy for the pediatric population: a systematic review. BMC Complement Altern Med. 2019;19(1):60. Published 2019 Mar 13. doi:10.1186/s12906-019-2447-2	Fifty studies investigated the clinical effects of manual therapies for a wide variety of pediatric conditions. Moderate-positive overall assessment was found for 3 conditions: low back pain, pulled elbow, and premature infants. Inconclusive unfavorable outcomes were found for 2 conditions: scoliosis (OMT) and torticollis (MT). All other condition's overall assessments were either inconclusive favorable or unclear. Adverse events were uncommonly reported. More robust clinical trials in this area of healthcare are needed.
Lanaro D, Ruffini N, Manzotti A, Lista G. Osteopathic manipulative treatment showed reduction of length of stay and costs in preterm infants: A systematic review and meta-analysis. Medicine (Baltimore). 2017;96(12):e6408. doi:10.1097/MD.0000000000006408	5 trials enrolling 1306 infants met our inclusion criteria. Although the heterogeneity was moderate (I = 61%, P = 0.03), meta-analysis of all five studies showed that preterm infants treated with OMT had a significant reduction of LOS by 2.71 days (95% CI -3.99, -1.43; P < 0.001). Considering costs, meta-analysis showed reduction in the OMT group (-1,545.66&OV0556;, -1,888.03&OV0556;, -1,203.29&OV0556;, P < 0.0001). All studies reported no adverse events associated to OMT. Subgroup analysis showed that the benefit of OMT is inversely associated to gestational age. The present systematic review showed the clinical effectiveness of OMT on the reduction of LOS and costs in a large population of preterm infants.
Pregnancy and Postpartum Complaints	
Franke H, Franke JD, Belz S, Fryer G. Osteopathic manipulative treatment for low back and pelvic girdle pain during and after pregnancy: A systematic review and meta-analysis. J Bodyw Mov Ther. 2017;21(4):752-762. doi:10.1016/j.jbmt.2017.05.014	Of 102 studies, 5 examined OMT for LBP in pregnancy and 3 for postpartum LBP. Moderate-quality evidence suggested OMT had a significant medium-sized effect on decreasing pain (MD, -16.65) and increasing functional status (SMD, -0.50) in pregnant women with LBP. Low-quality evidence suggested OMT had a significant moderate-sized effect on decreasing pain (MD, -38.00) and increasing functional status (SMD, -2.12) in postpartum women with LBP. This review suggests OMT produces clinically relevant benefits for pregnant or postpartum women with LBP.

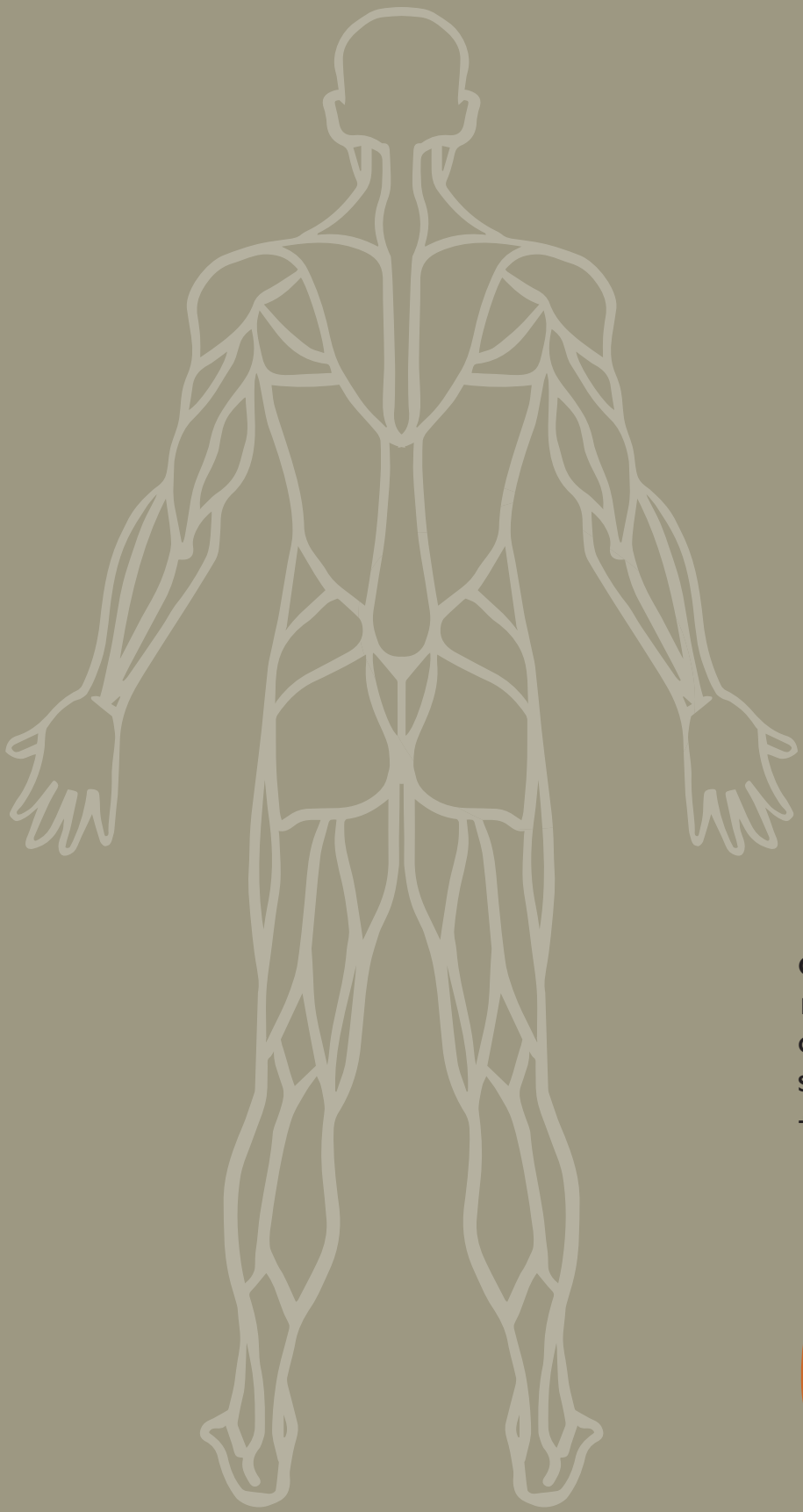
van Benten E, Pool J, Mens J, Pool-Goudzwaard A. Recommendations for physical therapists on the treatment of lumbopelvic pain during pregnancy: a systematic review. J Orthop Sports Phys Ther. 2014;44(7):464-A15. doi:10.2519/jospt.2014.5098	A total of 22 articles (all randomized controlled trials) reporting on 22 independent studies were included. Overall, the methodological quality of the studies was moderate. Data for 4 types of interventions were considered: a combination of interventions (7 studies, n = 1202), exercise therapy (9 studies, n = 2149), manual therapy (5 studies, n = 360), and material support (1 study, n = 115). All included studies on exercise therapy, and most of the studies on interventions combined with patient education, reported a positive effect on pain, disability, and/or sick leave. Evidence-based recommendations can be made for the use of exercise therapy for the treatment of lumbopelvic pain during pregnancy.
Hall H, Cramer H, Sundberg T, *et al*. The effectiveness of complementary manual therapies for pregnancy-related back and pelvic pain: A systematic review with meta-analysis. Medicine (Baltimore). 2016;95(38):e4723. doi:10.1097/MD.0000000000004723	11 articles reporting on 10 studies on a total of 1198 pregnant women were included in this meta-analysis. The therapeutic interventions predominantly involved massage and osteopathic manipulative therapy. Meta-analyses found positive effects for manual therapy on pain intensity when compared to usual care and relaxation but not when compared to sham interventions.
Ruffini N, D'Alessandro G, Cardinali L, Frondaroli F, Cerritelli F. Osteopathic manipulative treatment in gynecology and obstetrics: A systematic review. Complement Ther Med. 2016;26:72-78. doi:10.1016/j.ctim.2016.03.005	24 studies were included (total sample=1840), addressing back pain and low back functioning in pregnancy, pain and drug use during labour and delivery, infertility and subfertility, dysmenorrhea, symptoms of (peri)menopause and pelvic pain. Overall, OMT can be considered effective on pregnancy related back pain but uncertain in all other gynecological and obstetrical conditions. Although positive effects were found, the heterogeneity of study designs, the low number of studies and the high risk of bias of included trials prevented any indication on the effect of osteopathic care.
Irritable Bowel Syndrome	
Müller A, Franke H, Resch KL, Fryer G. Effectiveness of osteopathic manipulative therapy for managing symptoms of irritable bowel syndrome: a systematic review. J Am Osteopath Assoc. 2014;114(6):470-479. doi:10.7556/jaoa.2014.098.	All studies reported more pronounced short-term improvements with OMT compared with sham therapy or standard care only. These differences remained statistically significant after variable lengths of follow-up in 3 studies. Low risk of bias. The present systematic review provides preliminary evidence that OMT may be beneficial in the treatment of patients with IBS. However, caution is required in the interpretation of these findings because of the limited number of studies available and the small sample sizes
Extremity Joints	
Bronfort G, Haas M, Evans, R Leininger B, Triano J. Effectiveness of manual therapies: the UK evidence report. Chiropr Osteopat 2010 Feb 25;18:3. doi: 10.1186/1746-1340-18-3.	Tennis elbow (mobilization and exercise) for pain and function, hip osteoarthritis (manipulation and mobilization) for pain, function and range of movement, knee osteoarthritis and patellofemoral pain syndrome (manipulation, mobilization and exercise) for pain and function, plantar fasciitis (manipulation, mobilization and exercise) for pain and function: all moderate strength, positive evidence.
Pollack Y, Shashua A, Kalichman L. Manual therapy for plantar heel pain. Foot (Edinb). 2018;34:11-16. doi:10.1016/j.foot.2017.08.001	A total of six relevant RCTs were found: two examined the effectiveness of joint mobilization on plantar heel pain and four the effectiveness of soft tissue techniques. Five studies showed a positive short-term effect after manual therapy treatment, mostly soft tissue mobilizations, with or without stretching exercises for patients with plantar heel pain, compared to other treatments. Moderate and high-quality RCTs indicate soft tissue mobilization is an effective modality for treating plantar heel pain. Outcomes of joint mobilizations are controversial.

Breast Cancer Care	
Clar C, Tsertsvadze A, Court R. *et al.* Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. Chiropr Man Therap 22, 12 (2014). https://doi.org/10.1186/2045-709X-22-12	Moderate (positive) evidence for the effectiveness of massage techniques involving manual therapy elements in breast cancer survivors and terminal cancer patients for range of movement and function of the arm.
Ezzo J, Manheimer E, McNeely ML, *et al.* Manual lymphatic drainage for lymphedema following breast cancer treatment. 2015. Cochrane Database of Systematic Reviews. https://doi.org/10.1002/14651858.CD003475.pub2	When women were treated with a course of intensive compression bandaging, their swelling went down about 30% to 37%. When manual lymphatic drainage (MLD) was added to the intensive course of compression bandaging, their swelling went down another 7.11%. Thus, MLD may offer benefit when added to compression bandaging. Examining this finding more closely showed that this significant reduction benefit was observed in people with mild-to-moderate lymphedema when compared to participants with moderate-to-severe lymphedema. Thus, our findings suggest that individuals with mild-to-moderate BCRL are the ones who may benefit from adding MLD to an intensive course of treatment with compression bandaging.
Adverse Events	
Carnes D, Mars T, Mullinger B, Froud R, Underwood M. Adverse events and manual therapy: a systematic review. Manual Therapy. 2010; 15(4):355-63.	Eight prospective cohort studies and 31 manual therapy RCTs were accepted. The incidence estimate of proportions for minor or moderate transient adverse events after manual therapy was approximately 41% (CI 95% 17-68%) in the cohort studies and 22% (CI 95% 11.1-36.2%) in the RCTs; for major adverse events approximately 0.13%. The pooled relative risk (RR) for experiencing adverse events with exercise, or with sham/passive/control interventions compared to manual therapy was similar, but for drug therapies greater (RR 0.05, CI 95% 0.01-0.20) and less with usual care (RR 1.91, CI 95% 1.39-2.64).
Clar C, Tsertsvadze A, Court, R. *et al.* Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. Chiropr Man Therap 22, 12 (2014). https://doi.org/10.1186/2045-709X-22-12	Mild-to-moderate adverse events of transient nature (e.g., worsening symptoms, increased pain, soreness, headache, dizziness, tiredness, nausea, vomiting) were relatively frequent. Evidence from high, medium, and low-quality systematic reviews specifically focusing on adverse events suggested that approximately half of the individuals receiving manual therapy experienced mild-to-moderate adverse event which had resolved within 24–74 hours. Evidence indicated that serious (or major) adverse events after manual therapy were very rare (e.g., cerebrovascular events, disc herniation, vertebral artery dissection, cauda equine syndrome, stroke, dislocation, fracture, transient ischemic attack). Evidence on safety of manual therapies in children or pediatric populations was scarce; the findings from two low quality cohort studies and one survey were consistent with those for adults that transient mild to moderate intensity adverse events in manual treatment were common compared to more serious or major adverse events which were very rare.
Driehuis F, Hoogeboom TJ, Nijhuis-van der Sanden MWG, de Bie RA, Staal JB. Spinal manual therapy in infants, children and adolescents: A systematic review and meta-analysis on treatment indication, technique and outcomes. PLoS One. 2019;14(6):e0218940. Published 2019 Jun 25. doi:10.1371/journal.pone.0218940	Severe harms were relatively scarce, poorly described and likely to be associated with underlying missed pathology. Gentle, low-velocity spinal mobilizations seem to be a safe treatment technique in infants, children, and adolescents.
Paige NM, Miake-Lye IM, Booth MS, *et al.* Association of Spinal Manipulative Therapy With Clinical Benefit and Harm for Acute Low Back Pain: Systematic Review and Meta-analysis JAMA. 2017;317(14):1451-1460. doi:10.1001/jama.2017.3086	Minor transient adverse events such as increased pain, muscle stiffness, and headache were reported in more than half of patients in the large case series. Meaning: Among patients with acute low back pain, spinal manipulative therapy was associated with modest improvements in pain and function and with transient minor musculoskeletal harms.

Rubinstein S, de Zoete A, van Middelkoop M, Assendelft WJJ, de Boer MR, van Tulder MW. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomized controlled trials. BMJ. 2019; 364: l689. doi: 10.1136/bmj.l689	Low risk of adverse events

Cost Effectiveness

Furlan AD, Yazdi F, Tsertsvadze A, *et al.* A systematic review and meta-analysis of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low-back pain. Evid Based Complement Alternat Med. 2012;2012:953139. doi:10.1155/2012/953139	The reported events in RCTs were mostly moderate in severity and of transient nature (e.g., increased pain). In one RCT, after 2 weeks of treatment, patients with neck pain receiving manipulation were not at significantly increased risk for having an adverse event compared to patients receiving mobilization (OR = 1.44, 95% CI: 0.83, 2.49). In another RCT, the proportion of patients with neck pain having adverse events was similar in manipulation versus Diazepam groups (9.5% versus 11.1%).



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