



The Portuguese Osteopathic Practitioners Estimates and RATES (OPERA): A cross-sectional survey

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ARTICLE INFO

Keywords:

Health occupations
Health care surveys
Osteopathic care
Portugal

ABSTRACT

Objectives: Osteopathy is regulated as an independent healthcare profession in Portugal. The Osteopathic Practitioners Estimates and RATES (OPERA) project was developed as a survey to profile the osteopathic profession. This study aimed to describe the characteristics of Portuguese osteopathic practitioners.

Methods: A voluntary online-based survey was distributed across Portugal between February and June 2020. The survey, composed of 52 questions and seven sections, was formally translated from English to Portuguese and adapted from the original version. Two pilot tests evaluated cultural adaptation and reproducibility. Adult, self-defined osteopaths working in Portugal were eligible. Recruitment of participants was performed through social media and an e-based campaign.

Results: A total of 222 osteopaths participated in the study, 143 were male (64%), aging between 30 and 39 years (42%), mainly working in Lisbon (30%). Most respondents had preliminary healthcare training (68%), mainly as massage therapists. The majority of respondents were self-employed (83%), owner of a clinic (55%) and working alone (59%). The median number of consultations per week was 21–25 and respondents scheduled 46–60 min for each consultation. The majority of patients seek care for lumbar (52%), cervical (38%) and upper spine (38%) complaints. Although most respondents experience a strong osteopathic identity, they do not advertise themselves exclusively as osteopaths.

Conclusions: This study represents the first nationwide document to determine osteopaths' characteristics in Portugal. The study results provide a basis for future surveys that will include cohorts with higher levels of education, as well as findings from other European countries.

Implications for practice

- The most common type of osteopathic training in Portugal was a four-year part-time professional training program, with a prior health education program of mostly massage therapy.
- Although respondents experience a strong osteopathic identity, they fail to fully disclose themselves to the public as osteopaths.
- For the elaboration of a working diagnosis, respondents mainly used palpation skills for diagnostic techniques.

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<https://doi.org/10.1016/j.ijosm.2022.04.002>

Received 8 July 2021; Received in revised form 11 February 2022; Accepted 1 April 2022

Available online 5 April 2022

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- The most often chosen treatment techniques performed by respondents were articulatory/mobilisation techniques and soft and connective tissue techniques.

1. Introduction

The European Committee for Standardisation (CEN) defines osteopaths as primary-contact healthcare professionals delivering person-centred healthcare [1]. Osteopathy emerged at the end of the 19th century in the United States of America (USA) [2,3]. The profession came to the United Kingdom (UK) at the beginning of the 20th century and somewhat later to continental Europe [4]. In Portugal, osteopathy was regulated as an independent, non-conventional therapy with primary contact rights in 2013, joining other regulated European countries such as Cyprus, Denmark, Finland, France, Iceland, Italy, Lichtenstein, Luxembourg, Malta, Switzerland, and the UK. Belgium and Norway have already recognized osteopathy as a healthcare profession but have not yet regulated it [5]. Although the World Health Organization (WHO) recommends national regulation [6], there is still a lack of information about the profession's demographic, practice characteristics and the education of its practitioners.

In recent years, several osteopathic workforce surveys have been conducted in Europe [7–11], the USA [12] and Australia [13–16].

The Osteopathic Practitioners, Estimates and RATES (OPERA) project from the COME Collaboration also aims to meet this need by collecting and analysing data from several European countries using the same questionnaire for better comparability [17–19]. This project aims to provide an accurate picture of the current state of the osteopathic profession in Europe. Several countries (Austria, Belgium, Italy, Luxembourg, Spain, and The Netherlands) have already conducted a similar survey, and it is currently being implemented in France [20]. Therefore, it is important to provide valid information that regulators, healthcare policymakers, professional associations, and educational institutions can access data on the profile of osteopathic professionals, their geo-distribution and the impact on strategies for improving healthcare. This is particularly important in Portugal, where the regulation has been fully implemented with accredited higher-education training and professional registration. By taking this information into account, and comparing it with that of other countries, the profession in Portugal can better respond to the needs of society and adapt to the current evolution of healthcare policies [21].

Prior to the full implementation of the legislative framework in Portugal, in 2013, osteopathic education was heterogeneous, largely part-time and did not lead to an academic degree. From 2016, osteopathy degrees are available from higher education.

From 2019 to 2025, a transitional period for applying for a professional licence has been introduced, during which candidates with a non-academic background have the opportunity to enter the profession. The number of osteopaths practising in Portugal in 2019 was estimated at 2100.

Currently, educational institutions that have successfully obtained approval for their four-year, full-time osteopathy programs have engaged their staff members from diverse healthcare backgrounds and challenged the profession with new ideas and questions.

Therefore, it was the right time to conduct the OPERA survey prior to the graduation of the first cohort of undergraduate osteopathy students in July 2020, to study the profile of osteopathic practitioners before the compulsory access to the profession through higher education. In the future, this survey should be repeated including those osteopaths who have received higher education. The comparison between the two studies may reveal the most important changes in the profession as a result of the regulation process, and it may also be useful for the decision-making process in countries that want to regulate osteopathy.

The aim of this study was to describe the characteristics of Portuguese osteopathic practitioners, work status, training, and features of clinical practice in relation to consultation structure, patient profile and

use of diagnostic and treatment modalities.

2. Methods

This observational descriptive cross-sectional study followed the methods described in previous OPERA studies [18,19].

2.1. Target population

A voluntary, online-based survey was distributed between February and June 2020. The inclusion criteria were: all practitioners over 18 years of age, working in Portugal, who consider themselves to be osteopaths, regardless of their training or academic degree(s), and who are proficient in the Portuguese language. Students of osteopathy, including those attending higher education undergraduate programmes, and those with mental and physical impairments that would prevent participation in the online survey, were excluded from the study. Respondents had to consent to their participation on the online survey access page. The survey was approved by the Institutional Review Board of the Foundation COME Collaboration (09/2019).

2.2. Recruitment

A website was set up exclusively for this research. To attract Portuguese osteopaths, an E-based campaign was created through a social-media strategy to every osteopathic education institution and voluntarily registering bodies, asking them to forward the e-flyer to their members. To encourage participation, e-flyers were distributed weekly to all mailing lists, over the six-month recruitment period and during data collection. It included reminders posted in social media groups identified as centred in osteopathy. These posts included a weblink to a page on the OPERA website, where information about the study could be found. If the visitor to that page agreed to the outlined conditions for participation in this study, then the visitor could send and enter their email address. The IT system would then send the link to the questionnaire to that email address. In addition, all participating osteopathic educational institutions were given a paper-based flyer to display at their location.

Also, a manual white-pages search was conducted to identify other resources. The white-pages search involved publicly accessible registered data on the website of the regulatory authority (ACSS) to identify potential participants. A web browser search would show if the identified osteopath had the email in the public contacts and if so, we would send the E-flyer for their appreciation and decision to participate or not in this study.

With regard to possible duplicate answers, the server IT system (COME Survey) allows such validation. Each respondent had to register with a valid and verifiable email address. After successful registration, an email with a unique web link was sent to the survey, allowing the respondent to participate. A second attempt using the same email address would be rejected. Reminders were sent to the entire mailing list telling them to ignore the email if they had already responded.

2.3. Survey tool

The OPERA survey used a validated questionnaire, based on the one used in the Benelux survey [17], only adapted according to new insights that were described in the Spanish OPERA study [19]. The questionnaire comprises 52 questions and was designed to collect data of seven sections: socio-demographic characterization, work status and professional activities, education and learning throughout life, professional identity, fee and consultation structure, patients, and osteopathic competencies in assessment and treatment. The translation and validation procedure to the Portuguese language followed the forward-backwards process recommended by the WHO. It included translating and linguistic adaptation by two English-Portuguese translators-interpreters with

experience in health research, blinded to previous questionnaire knowledge, and not knowing each other. Then, a review group consisting of two osteopaths, fluent in English and Portuguese, analysed the translated document. The aim was to reduce the difference found in the translation, choosing, and adapting the best expressions and words to Portuguese osteopathic culture knowledge. The grammatical and idiomatic Portuguese version's accuracy was further ensured by two other osteopaths (mother-tongue in English and fluent in Portuguese). They were sent a copy of the questionnaire for back translation being blinded from the original survey. The same review group compared and analysed the translated questionnaire and matched it with the original version.

Two pilot tests, the first in 10 osteopaths and the second in 20 osteopaths, were then conducted for assessing cultural adaptation and reproducibility. Each osteopath was instructed to comment on the understanding of the questions/words/technical terms, and modifications were based on their observations. Cultural equivalence was established when at least 90% of the individuals did not demonstrate any difficulty in understanding each question. In the second pilot test, there were no suggestions made by the respondents.

The OPERA survey online platform, previously developed, used a data warehouse utilised for research purposes [18]. The questionnaire respected the anonymity and privacy of data following the European directive 2018/1725CE of the European Parliament. The data entered, therefore, was encrypted and sent via the internet using an ad-hoc software named COME Survey. This software runs highly secure surveys and studies containing potentially sensitive data [18]. Answers were anonymised, and IP addresses were neither disclosed nor available. The system automatically manages the link between e-mail address, study ID, and survey status, in order to prevent anyone from identifying the responses provided. Complete and anonymous data was only available to the OPERA research team. Data will be stored for 5 years and used for further analyses and benchmarking.

2.4. Information guidelines

Study information was e-mailed to the participants, and after the participants first registered, they received the informed consent and survey link to complete the questionnaire by providing information on the data from the above seven sections.

2.5. Statistical analysis

The population size was calculated based on the osteopaths registered in the Autoridade Central de Sistemas de Saúde (ACSS), the Portuguese healthcare professions regulator, ($n = 1067$ in December 2019) plus an estimation of the number of former students of osteopathy in professional training from inception to December 2019. This process generated an estimated population of 2100 osteopaths.

Considering the reported response rates in the literature, which is often $<40\%$ for medical practitioners [22]; Taylor & Scott 2018) and lower for web-based surveys [23], we anticipate that between 10 and 40% of the invited osteopaths would respond, leading to 210 to 840 respondents.

Completed questionnaires were individually examined, and no attempt was made to identify respondents. Indeed, no sensitive data was collected, such as name, surname, data of birth, fiscal code, residency or working address, as well as genetic, biometric, health-care, ethnic, racial and sexual orientation related data. Data was collected to avoid easy identifications. This concerns, for example, wide age-range, low details on training institutions and wide geographical working areas. Descriptive analysis of the results is presented using frequencies and percentages for quantitative variables. All statistical data was computed using R statistical program (v3.1.3.).

3. Results

3.1. Socio-demographic characteristics

The survey was completed by 222 Osteopaths, of which 143 were male (64.4%). Forty-two per cent of the respondents were aged between 30 and 39 years, followed by 33% between 40 and 49 years. There was a clear gender shift in the 20–29 years age category, with more women (64.3%) in this age group (Fig. 1).

Ninety-seven per cent were currently practising osteopaths, and approximately half of them were registered in a professional osteopathic association (Table 1). Respondents were distributed all over the country, with the highest participation in Lisbon, (29.7%), followed by Porto (17.6%) and Aveiro (9.5%). The overall osteopath/population ratio (100.000 citizens) is 21. Supplementary Table 1 details the various Portuguese regions. In Algarve, the ratio was the highest (3.42), and in Alentejo, it was the lowest (0.39).

The osteopathic population replacement ratio, which measures the number of osteopaths in the youngest age category divided by osteopaths in the oldest age category, is equal to 14. This number means that for each osteopath over 65 years old, there are 14 young osteopaths starting their clinical activity. The osteopathic growth index and growth rate between 2000 and 2020 was 2.01% and 0.95%, respectively.

3.2. Work status and professional activities

The majority of respondents were self-employed (83.8%), owner of a clinic (55.9%) and working alone (59.5%). Among those who stated they worked with other professionals, physiotherapists (15.1%) are the most common colleagues, followed by medical specialists (11.4%) and nutritionists (11.1%). Respondents declared referring patients to other professionals, and received referrals from other health professionals, as shown in Fig. 2a and Fig. 2b, respectively. Concerning the consultation policy, the majority of respondents informed patients about confidentiality policy (89.2%), chaperone policy for minors (88.7%), chaperone policy for intimate areas (77.9%), data protection policy (76.6%) and consultation cancellation policy (55.9%).

3.3. Education and lifelong learning

The most frequent type of osteopathic training was four years (31.5%) part-time (60.8%) at a Portuguese osteopathic education institution (93.7%). The majority of respondents (71.6%) had preliminary healthcare training, mainly as massage therapists (30.5%). The majority of respondents attended CPD courses (73.9%). Table 2 reports the descriptive data of osteopathic training and lifelong learning.

3.4. Professional identity

Only 40% of respondents advertised themselves exclusively as osteopaths. Respectively 87.8% and 71.2% of respondents strongly agreed with the statements 'I strongly define myself as a healthcare practitioner' and 'I strongly define myself as an osteopath'. Respondents agreed or strongly agreed with 'osteopathy being regulated by law as an independent profession' (91.4%) and considered that regulation would have a positive effect on how osteopaths practice' (98.6%). Only 55.4% of respondents agreed or strongly agreed that 'overall, the quality of patient care provided by osteopaths in Portugal is good'. A majority of respondents agreed to strongly agreed that 'patients should be better reimbursed for osteopathic care' (87.4%), that 'osteopaths in Portugal would like to have better cooperation with other healthcare professionals' (95.0%) and that osteopathy should be regulated as first line medical practice' (91.9%). Furthermore, a vast majority agreed to strongly agreed that 'osteopathy should develop using scientific evidence' (91.9%).

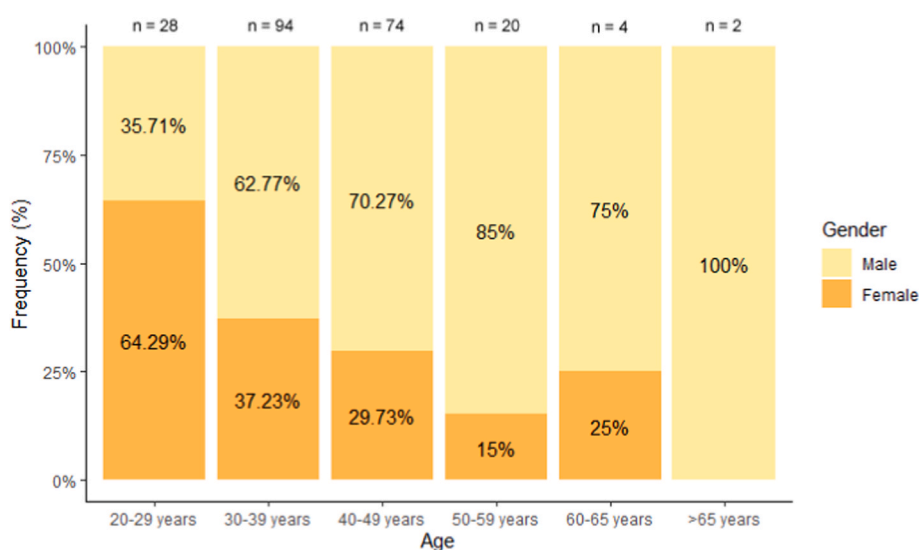


Fig. 1. Age distribution by gender (n = 222).

Table 1
Socio-demographic characteristics of respondents (n = 222).

Variable	n	%
Gender (m/f)	143/79	64.4/35.6
Geographical distribution		
Lisboa	66	29.7
Porto	39	17.6
Aveiro	21	9.5
Setúbal	19	8.6
Faro	15	6.8
Braga	13	5.9
Leiria	11	5.0
Viana Castelo	8	3.6
Coimbra	7	3.2
Other (n ≤ 5)	23	10.4
Practising osteopaths (y/n)	216/6	97.3/2.7
Professional osteopathic association (y/n)	109/113	49.1/50.9
Association		
AIO – Associação Independente de Osteopatia	89	67.4
OSTEOPAT	14	10.6
FPPO – Federação Portuguesa de Osteopatia	10	7.6
Other (n ≤ 5)	19	14.4

3.5. Fees and consultation structure

Most respondents worked five days a week, scheduled 46–60 min for a consultation, charged between 31 and 40 euros, and had an average waiting time for the first consultation between two and seven working days. The median number of consultations per week was 21–25. Details on the main practice characteristics are shown in Table 3.

3.6. Patients

While 68.4% of respondents stated that their patient database was equally balanced between men and women, 23.7% declared that they were mostly consulted by women. According to the respondents, all age categories were represented among their patients, although most were adults, with patients aged 40–65 years being consulted most frequently, while 39.2% of respondents never saw patients under the age of two.

In the past year, respondents confirmed that they were consulted almost equally ‘often to very often’ for acute (90.5%) and chronic (86.5%) complaints, followed by prevention (45.0%). According to the respondents, patients consulted them ‘very often’ for symptoms of the lower spine (52.7%), neck (38.7%), upper spine (38.3%) and shoulder (35.6%). Table 4 shows the most specific complaints seen by

respondents.

3.7. Osteopathic skills

Only 44.1% of respondents performed an osteopathic assessment at every consultation, while 31.5% confirmed to perform it often. Exclusion diagnostics to determine whether to treat or not were always performed by 67.1% of the respondents and 74.8% declared informing patients about possible risks and side effects to treatment. The most frequently used diagnostic and treatment techniques can be found, in decreasing order, in Supplementary Tables S2 and Table 5. Of all techniques applied to internal and sensitive areas, intraoral techniques were the most used (37.4% often to very often). Informed consent for oral techniques was requested by 34.8% of respondents, and for genital and rectal techniques by 62.2% and 62.3% respectively.

Within the recommendations given as part of the treatment plan, advice on exercises (61.7%) and physical activity (56.3%) were always discussed with patients. The reasons for referring patients to other healthcare professionals, rated as ‘very important’ by respondents, were ‘not my field of expertise’ (83.8%) and if there were ‘indication of undiagnosed pathology or structural deficit’ (64.0%). ‘Review of current medication’ (53.6%) was the third main reason for referring patients to another healthcare professional. Sixty-nine per cent of respondents used supplementary methods in their osteopathic practice. ‘Taping/kinesiology tape’ (46.8%) and ‘exercise therapy’ (44.2%) were the most used treatment approaches, and ‘applied kinesiology’ (15.6%) was by far the most used diagnostic approach.

4. Discussion

The current study aimed to characterize the profile of osteopaths working in Portugal and found the respondent’s most common profile of this survey as being self-employed, male, aged between 30 and 39 years of age, previously trained as a massage therapist, and having received a part-time training in osteopathy.

Data on gender and age of osteopaths in Portugal are in line with those of the Spanish [19] and Italian OPERA studies [18], as well as the Benelux OsteoSurvey [17]. They do, however, contrast with studies conducted in the UK and Switzerland. In the UK, the most representative age was between 41 and 50 years [24] and in Switzerland between 40 and 49 [25]. Also, this study shows a gender shift in the 20–29 years age category. This clear process of feminisation was also observed in the Italian and Spanish OPERA studies [18,19] and in the Benelux and Swiss

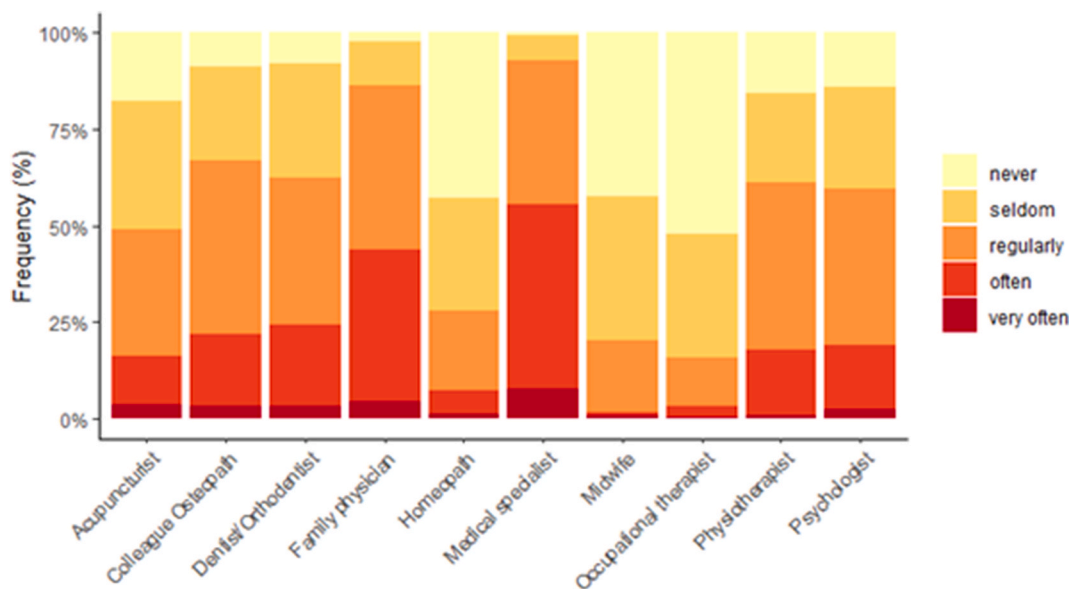


Fig. 2a. Referring patients from osteopaths to other health professionals (%).

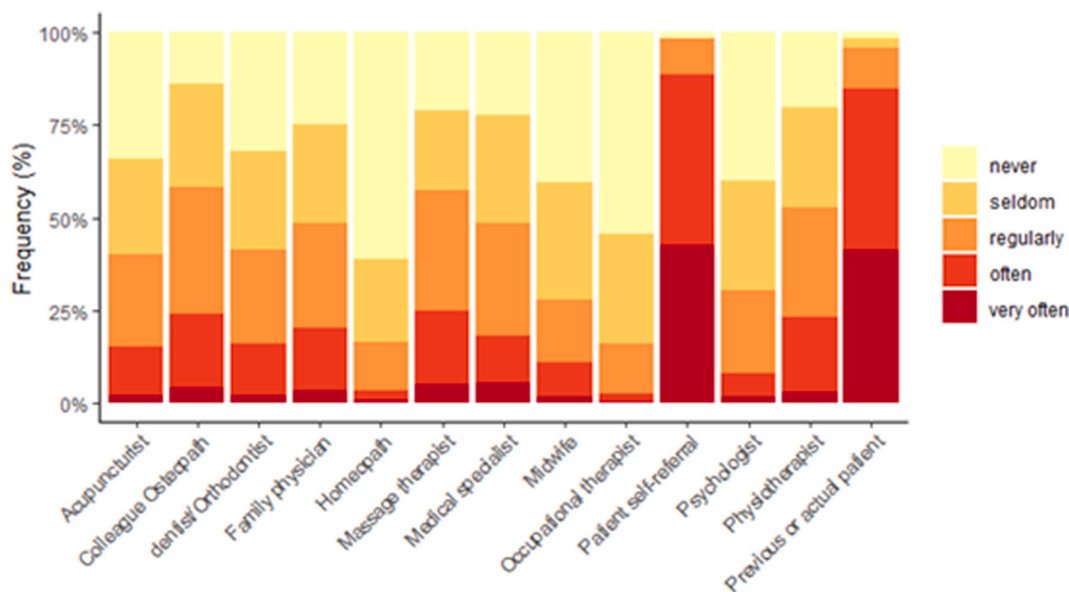


Fig. 2b. Referring patients from osteopaths from other health professionals (%).

Table 2
Osteopathic training and lifelong learning.

Descriptor	Variable	n	%
Type of Training	Part-time	135	60.8
	Full-time	87	39.2
Duration of the training	≤2 years	26	11.7
	3 years	68	30.6
	4 years	70	31.5
	≥5 years	58	26.1
Type of osteopathic academic qualification	Diploma Osteopathy (DO)	181	81.5
	Bachelor (Graduate)	21	9.5
	Master	10	4.5
	PhD	1	0.5
	No answer	9	4.1
Continuous Professional Development	Yes	164	73.9
	No	58	26.1

OsteoSurveys [17,25].

4.1. Osteopathic education

Although the existence of official benchmarks and minimal standards for osteopathic training [6; CEN Standard, 2015), osteopathic education is still heterogeneous. This is probably due to different regulations and historical backgrounds [26]. This lack of uniformity makes it difficult to characterize the profession and professionals as a whole [25].

The most common type of osteopathic training in the respondents of our survey was a four-year part-time professional training program, building on a prior health education program, of usually massage therapy. However, only 14% had an academic degree in osteopathy and 23% had an academic degree in another healthcare profession. This is in line with the 26% of the Spanish OPERA [19], but contrasts with 85% of respondents from the Benelux OsteoSurvey [17], and 74% of the Italian OPERA [18] who had obtained an academic degree prior to their

Table 3
Consultation characteristics of respondents (n = 222).

Variable	n	%
Consultation time new patient/returning patient		
<45 min	6/54	2.7/24.3
46–60 min	119/137	53.6/61.7
>60 min	97/31	43.7/14.0
Average waiting time for first consultation		
Same day	15	6.8
Next working day	52	23.4
2-7 working days	117	52.7
>8 working days	38	17.1
Fee first consultation/following consultation		
<25€	12/16	5.4/7.2
26-30€	33/54	14.9/24.3
31-40€	106/114	47.8/51.4
41-50€	47/29	21.2/13.1
>51€	24/9	10.8/4.1
Fee reduction for economically patients (y/n)	171/51	77.0/23.0
Number of clinical working days (week)		
≤2 days	22	9.9
3 days	25	11.3
4 days	34	15.3
5 days	78	35.1
≥6 days	63	28.4
Number of patient consultations/week		
≤10	55	24.8
11–20	52	23.4
21–30	51	23.0
31–40	35	15.8
>41	29	13.1
Number of new patient consultations/week		
0–5	125	56.3
6–10	82	36.9
>11	15	6.8

Table 4
The 10 most common specific complaints (in descending order of ‘often’ and ‘very often’ responses) [numbers in table are % (n)].

Specific complaint	never	seldom	regularly	often	very often
Non-specific low back pain	0.5 (1)	0.9 (2)	5.9 (13)	50 (111)	42.8 (95)
Non-specific neck pain	0.0 (0)	1.8 (4)	6.8 (15)	49.6 (110)	41.9 (93)
Lumbar radiculopathy	0.5 (1)	1.8 (4)	6.3 (14)	54.5 (121)	37.0 (82)
Cervical radiculopathy	0.5 (1)	4.1 (9)	14.4 (32)	58.1 (129)	23.0 (51)
Headache and migraine	2.7 (6)	6.3 (14)	26.6 (59)	46.9 (104)	17.6 (39)
Meniscus disorders	4.1 (9)	22.1 (49)	37.0 (82)	28.8 (64)	8.1 (18)
Cranio-mandibular complaints	6.8 (15)	24.8 (55)	37.8 (84)	25.7 (57)	5.0 (11)
Frozen shoulder	11.3 (25)	20.7 (46)	39.2 (87)	23.9 (53)	5.0 (11)
Infantile postural asymmetry	16.7 (37)	25.2 (56)	30.2 (67)	22.1 (49)	5.9 (13)
Digestive disorders	14.0 (31)	31.5 (70)	34.7 (77)	17.1 (38)	2.7 (6)

osteopathic training. It means that in Portugal, access to the profession is open to undergraduates and professionals from very distinct backgrounds. About 69% of osteopaths in Australia have a master’s degree in osteopathy, and another 22% have a bachelor’s or double bachelor’s degree in osteopathy [16]. Roughly 60% of UK osteopathy graduates also have a bachelor’s degree in osteopathy [27]. In most countries where osteopathy is regulated, a higher education degree is required to practice the profession, which may contribute to a homogeneous higher education profile [28]. Without regulation, the lack of uniformity in osteopathic education that characterises the profession is likely to

Table 5
The most common therapeutic techniques used (in descending order of ‘often’ and ‘very often’ responses) [numbers in table are % (n)].

Therapeutic Technique	never	seldom	regularly	often	very often	unknown
Articulatory/mobilisation techniques (GOT/TBA)	0.9 (2)	1.4 (3)	2.7 (6)	40.1 (91)	54.1 (120)	0.0 (0)
Soft and connective tissue techniques	0.9 (2)	2.3 (5)	6.8 (15)	38.3 (85)	51.8 (115)	0.0 (0)
Myofascial techniques	0.9 (2)	1.4 (3)	9.5 (21)	40.5 (90)	47.8 (106)	0.0 (0)
Muscle Energy Techniques	1.4 (3)	2.3 (5)	9.5 (21)	48.2 (107)	38.7 (86)	0.0 (0)
Inhibition techniques	0.9 (2)	2.3 (5)	11.3 (25)	48.7 (108)	36.9 (82)	0.0 (0)
Functional techniques	0.9 (2)	0.9 (2)	11.7 (26)	52.3 (116)	34.2 (76)	0.0 (0)
Fluid techniques	1.8 (4)	3.2 (7)	15.8 (35)	47.8 (106)	31.1 (69)	0.4 (1)
HVLA	1.8 (4)	6.3 (14)	14.9 (33)	48.2 (107)	28.4 (63)	0.5 (1)
Neuro- and viscerocranial techniques	5.0 (11)	8.6 (19)	22.5 (50)	38.3 (85)	24.3 (54)	1.4 (3)
Visceral techniques	2.7 (6)	9.9 (22)	27.0 (60)	35.1 (78)	23.0 (51)	2.3 (5)
Automatic shifting and fluid body approach	5.0 (11)	6.3 (14)	24.3 (54)	37.8 (84)	21.2 (47)	5.4 (12)

continue.

Our study was intended to characterize the profession prior to the start of the first cohort of university students in July 2020. Osteopaths who have completed a four-year university degree program may have other competencies and clinical expertise. It is expected that this will have an impact on the profile of the osteopath in terms of their skills and practice characteristics. This hypothesis could be tested by comparing the data from the current survey with the results of a follow-up survey that includes people who graduated from the university program.

4.2. Osteopathic identity and practice characteristics

Although most respondents strongly agreed to define themselves as osteopaths and felt that being an osteopath was important to them, only 40% advertised themselves exclusively as osteopaths. Thus, it seems that although respondents experience a strong osteopathic identity, they fail to fully disclose themselves to the public as osteopaths. Several possible explanations can be argued for this, such as being regulated as a profession or not, and economic reasons.

The vast majority of respondents in our survey were self-employed, which is in accordance with data from other European countries [10, 17–19,25,29].

Although working alone decreases communication and exchange between osteopathic professionals, the majority of respondents in the current study worked alone in their clinic. Having a colleague to benchmark against, having the opportunity to discuss difficult cases, and having a chaperone where needed, enhances the quality and safety of treatments [10,30]. Yet only a minority worked in a team, and this is also true of other European countries, with perhaps the exception of Spain (Supplementary Table 3) [29] showed that osteopaths working as part of a team are significantly younger than their colleagues working alone, indicating a trend among the new osteopathic generation to work as an interprofessional team with other healthcare professionals and to recognise the added value that interprofessional care provides to patients. The two most frequently chosen team members in the European

countries, shown in [Supplementary Table 3](#), were physical therapists and other osteopaths, except in Italy and Portugal, which chose medical specialists as the second most frequently chosen team member.

4.3. Patient profile

Although the current survey was practitioner-oriented, data about patients visiting an osteopath was very similar to that of the profile of patient-oriented studies showing that the majority of patients are adults with mean and mode age ranges between 40 and 65 years and were more likely to be women than men. They consult an osteopathic practitioner with musculoskeletal complaints of mostly in the cervical and lumbar region [8,9,11,15,25,31,32].

4.4. Osteopathic skills

For the elaboration of a working diagnosis, respondents mainly used palpation skills for diagnostic techniques, which is in accordance with other European studies [10,17,19,20,29]. The most often chosen treatment techniques performed by Portuguese respondents were articulatory/mobilisation techniques and soft and connective tissue techniques, which is similar to the Belgian, UK, Spanish and Swiss respondents [8,19,20,25] and in the top three of Austrian and Italian respondents [20,29]. In addition to articulatory techniques, visceral techniques also seem to be used very often by European continental osteopaths [10,17,20,25,29].

The lack of informed consent for techniques applied to internal and sensitive areas is particularly worrying, especially given their mandatory nature in Portuguese legislation [33] ([Supplementary Table 4](#)). This may also be a sign that training on mandatory consent procedures was not adequate, or at least showed reduced compliance. In addition, 11.7% of respondents did not even offer the possibility to schedule the proposed examination and/or treatment of internal or sensitive areas for the next appointment, so patients would have time to make an informed decision ([Supplementary Table 5](#)).

4.5. Practical implications

This study presents the professional profile of the Portuguese osteopaths before the national regulation of the profession. Although most were self-employed, clinic owners, working alone with a robust osteopathic identity, they did not fully disclose themselves to the public as osteopaths. The most common type of osteopathic training in Portugal was a four-year part-time professional training program, with a prior health education program of mostly massage therapy. In clinical practice, osteopaths treat acute and chronic complaints in all body areas but mainly in the spine and shoulders, using palpation skills as a diagnostic technique. As a treatment, the most common manual techniques were articulatory/mobilisation techniques and soft and connective tissue techniques.

4.6. Strength and limitations

To our knowledge, the present study was the first to examine the professional characteristics of osteopaths in Portugal. It provides an overview of the osteopath's profile just before graduating from the first academically educated professionals. Comparing these findings to those of a future version of this survey may help determine whether osteopathy in Portugal is evolving in accordance with internationally recognized best practices in osteopathic clinical skills and education.

While the research team contacted ACSS and all associations and institutes of osteopathic education in Portugal, not all agreed to participate in this project. This refusal to participate reduced the surveyed sample, thereby impairing data generalizability. Although the sample size was small, it is within the defined limits for the osteopathic population in Portugal. A similar proportion of the sample can be found

in the Spanish OPERA [19]; there was a possibility of a coverage error from some Portuguese regions being under representative. Therefore, results should be interpreted with caution.

Finally, because practitioners were responsible for data entry, the results may have been influenced by respondent bias. Although respondents were asked to refer to their diary/appointment schedule in case of uncertainty, they were describing their practice and we do not know to what extent this information was the result of audited clinical data.

5. Conclusion

As part of a larger European project, this study represents the first nationwide document to determine osteopaths' characteristics in Portugal. These findings revealed the current state of socio-demographic, training and practice characteristics of Portuguese osteopathic practitioners. The majority of respondents to this survey do not advertise themselves exclusively as osteopaths and almost half of respondents have doubts about the quality of patient care provided by osteopaths in Portugal. A future survey is likely to provide new insights into how current regulation has shaped the profession, also including higher-education cohorts. The information provided could contribute to the body of evidence used by the profession, stakeholders and policy-makers and inform them to plan future developments in training and service provision and prioritise research on the basis of e.g. common clinical presentations.

Declaration of competing interest

Jorge Eduardo Esteves is an Editor of the Int J Osteopath Med but was not involved in the review or editorial decisions regarding this manuscript.

Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethical Approval

The study design and procedures were approved by the Institutional Review Board of the Foundation COME Collaboration (09/2019)

Acknowledgments

We want to show our gratitude to the following representatives of institutions, partners with this study, for their help with disseminating the invitation to participate to a wider range of osteopaths.

Miguel Faria (AiO: Associação Independente de Osteopatia); Rita Benamor (Barral Institute Portugal); José Lemos (Bwizer); José Manuel Vitoriano (COL: Centro Osteopático de Lisboa); Bruno Ribeiro (EOM: Escuela Osteopática de Madrid); Frederico Carvalho (IMT: Instituto de Medicina Tradicional); Marco Silvestre (IPOC: Instituto Português de Osteopatia Clássica); Nicole Santos (Master Science Lab.); Bruno Campos (Osteoform); Júlia Araújo Gonçalves (UMN: União da Medicinas Naturais).

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijosm.2022.04.002>.

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