SHORT REPORT:

Clinical characteristics of Australian osteopaths who teach: A national sample

P. J. Orrock[1], B. Vaughan[1, 2], M. Fleischmann[3] & K. Fitzgerald[4]

Abstract

Background: Health professionals involved in teaching future practitioners have been studied to some extent, but our knowledge of their clinical characteristics is variable. Our study sought to profile the clinical characteristics of osteopaths who teach in the three Australian universities delivering pre-professional osteopathy education.

Materials: This study is a secondary analysis of data collected via the Australian Osteopathy Research and Innovation Network (ORION) project. Descriptive statistics were generated for each of the 27-item questionnaire variables. For binary responses, unadjusted odds ratios were calculated, and for continuous variables, independent t-tests were used. Backward step-wise regression modelling was used to identify significant characteristics associated with university teaching in osteopathy.

Results: The survey demonstrated 9.9% of Australian osteopaths reported being involved in university teaching. Compared to non-teaching survey respondents, the osteopaths involved in university teaching were more likely to be female (OR 1.56), older ($p < 0.01$) and in clinical practice for longer ($p < 0.01$) but report fewer patient care hours ($p < 0.01$) and patient visits per week ($p < 0.01$). Osteopaths involved in university teaching were also more likely to be involved in research (OR 18.54) and clinical supervision (OR 12.39). They also reported a broader range of patient presentations and therapeutic modalities than their counterparts.

[1] Faculty of Health, Southern Cross University, Lismore, New South Wales
[2] Department of Medical Education, University of Melbourne, Melbourne, Victoria
[3] College of Health and Human Sciences, Victoria University, Melbourne, Victoria
[4] School of Health and Biomedical Sciences, RMIT University, Melbourne, Victoria

Correspondence

Dr Paul Orrock
Faculty of Health
Room Z2.11
Southern Cross University
PO Box 157
Lismore, NSW 2480
Tel: +61 2 6626 9136
Email: paul.orrock@scu.edu.au

Conclusions: This nationally representative survey demonstrates a small percentage of the Australian osteopathy profession are engaged in university teaching. Our secondary analysis has highlighted several characteristics associated with involvement in university teaching that begin to shed light on the composition of the Australian osteopathy teaching workforce. This data may inform development of a skilled and experienced teaching workforce.

Keywords: osteopathic medicine; training; university teacher attributes; clinical teaching

Introduction

Qualified health professionals who engage in university education of health professional learners have been studied to some extent. This research has shown that staffing in these programs requires a balanced mix of teaching staff, including educators with skills and qualifications in basic and clinical sciences, medical sciences and the clinical skills of diagnosis and management (Hu at al., 2013). The most common entry point into university teaching for health practitioners is reported to be through clinical teaching (Dahlstrom et al., 2005), and much of the health professional education literature focuses on the characteristics of effective clinical educators (Gibson et al., 2019; Sutkin et al., 2008). There is also emerging literature on the characteristics of Australian osteopaths who participate in clinical teaching in the profession (Vaughan, Fleischmann, et al., 2020). However, there is little reporting the characteristics of health professional university educators.

Gibson et al. (2019), in their systematic review of multiple allied health professions (not including osteopathy), identified seven common skills and qualities associated with effective clinical educators: intrinsic and personal attributes of clinical educators, the provision of skillful feedback, teaching skills, fostering collaborative learning, understanding expectations, organisation and planning, and clinical educators in their professional role. It would be reasonable to expect that these skills and qualities are consistent with health professional university educators, in addition to competence in the discipline (Goldie et al., 2015). However, we know little about the clinical characteristics of this allied health grouping or whether there are any differences between medicine and allied health from an educator characteristic perspective.

Drawing on broader higher education, Van Lankveld et al. (2017) suggest university educators identify as "blended professionals" demonstrating a commitment to serving their profession at multiple levels. This altruism was identified by Dahlstrom et al. (2005) as a motivator to teach medical students, alongside obtaining faculty appointments, having access to library facilities and training as an educator. There is limited literature supporting these ideas in health professional education. However, developing our understanding of these motivators may assist in improving the education workforce.

There are drivers regarding the attributes of university educators that come from both national quality agencies and the specific health professions' accreditation standards. In

Australia, the government Tertiary Education Quality and Safety Agency (2015) require university educators to have a qualification one level above the one they are teaching in, or the equivalent through relevant academic, professional or practice-based experience and expertise. However, the Australian health professions course accreditation standards in allied health are silent on the expected characteristics of those involved in teaching the program, apart from clinical education. The accreditation standards that relate to expectations about academic staff make explicit certain characteristics, especially in the clinical education of students. For example, the accreditation standards for the training of osteopaths in Australia section 2.4.2 requires that "the education provider can show that the clinical education element of the program: (i) is conducted under the supervision of osteopathic and other healthcare practitioners experienced in professional practice" (Australasian Osteopathic Accreditation Council, 2016, para. 10), with similar standards across other Australian allied health professions.

While it is clear that the qualifications, clinical skills and competence of academic staff in health disciplines is considered important in accreditation of courses, the recruitment of staff and the perception of students regarding the quality of teaching and supervision, little is known about the clinical practice attributes of health professionals who become involved in university teaching. This is true of osteopathy as a relatively unexplored member of the allied health disciplines and one that has recently had a national practice survey that provided an opportunity to explore this issue (Adams et al., 2018). This information may prove valuable in demonstrating to a variety of stakeholders–including professional and accreditation bodies, government and consumers–that future Australian osteopaths are being educated by experienced and competent practitioners. Therefore, the aim of the study was to explore the clinical practice characteristics of osteopaths who are involved in university teaching in the three pre-professional programs in Australia.

Methods

The University of Technology Sydney provided the ethics approval for data collection (approval number 2014000759). This study is a secondary analysis of data collected via the Osteopathy Research and Innovation Network (ORION) project (Adams et al., 2018), the first national practice-based research network (PBRN) focusing on Australian osteopaths. Participants who completed the ORION practice questionnaire were registered Australian osteopaths. Data collection was undertaken from July to December 2016, and the methodology for recruitment is described elsewhere (Adams et al., 2018). At the time of recruitment for the ORION project, there were 2,020 registered practising osteopaths in Australia, and a total of 992 osteopaths completed the ORION practitioner questionnaire (response rate 49.1%) (Adams et al., 2018). The participants of the ORION project are nationally representative of the wider community of osteopaths registered in Australia on a number of key indicators, including practice location and gender (Adams et al., 2018).

The ORION practice questionnaire comprised 27 items across three aspects of Australian osteopathy practice. The three aspects of practice were individual practitioner demographics (i.e., age, gender and number of years in private osteopathy practice), practice characteristics (i.e., patient care hours, patient visits per week and practice location and interactions with other health professionals either through co-location or referrals) and clinical management (i.e., body regions treated, manual therapy technique use, advice to patients). Items included yes/no, frequency and Likert-type response options.

As part of the participant demographic, respondents were asked to indicate if they had been involved in university teaching as an osteopath in the 12 months preceding completion of the questionnaire. The response options were "yes" or "no". This item was the outcome variable in the current study. Other demographic, practice and clinical management characteristics were considered to be exposure variables. For these variables, frequency items (never, rarely, sometimes and often) were dichotomised to "not often" (combining never, rarely and sometimes) or "often". Attitudinal items (no, unsure, maybe, definitely) were dichotomised to "definitely" and "not definitely". Continuous variables were age, average patient numbers per week, average patient care hours per week and years in clinical practice.

Descriptive statistics were generated for each variable on the questionnaire. For binary responses, unadjusted odds ratios were calculated with each variable and the outcome variable, with 95% confidence intervals calculated where $p < 0.05$. For continuous variables, independent t-tests were used with an alpha of $p < 0.05$ and effect size calculations (Cohen's d) performed when appropriate. To identify significant characteristics associated with reporting involvement in university teaching in the preceding 12 months, questionnaire variables with $p < 0.20$ were entered into a binary logistic regression analysis with backward elimination. Adjusted odds ratios (ORa) with p-values and 95% confidence intervals (CI) were calculated with significance set at $p < 0.05$. All analyses were performed in SPSS version 26.

Results

The response rate for the question "involved in university teaching as an osteopath" was 99.9% of the ORION sample. Ninety-eight Australian osteopaths (9.9%) indicated being involved in university teaching in the previous 12 months. Female Australian osteopaths were over 50% more likely to be involved in university teaching in osteopathy compared to males (OR 1.56) (Table 1). Those involved in teaching were also significantly older ($p < 0.01$) and had been in clinical practice for longer compared to those who did not report university teaching ($p < 0.01$), with medium effect sizes. However, they reported significantly less patient care hours ($p < 0.01$) and patient visits per week ($p < 0.01$) (Table 1), with medium effect sizes. Osteopaths involved in university teaching were also more likely to participate in clinical supervision (OR 18.54) and research (OR 12.39) (Table 1).

Table 1

Practitioner Characteristics of Australian Osteopaths Who Reported Involvement in University Teaching in the Preceding 12 Months Compared With Those Who Reported No Involvement

	No (n = 893)	**Yes** (n = 98)	***p*-value**	**ORc [95% CI]**
Gender				
Male	520 (59.4%)	56 (48.3%)		
Female	356 (40.6%)	60 (51.7%)	0.02	1.56 [1.06, 2.31]
Age (years)				
Mean (± SD)	37.6 (± 10.8)	41.3 (± 10.6)	< 0.01[a]	
Years in clinical practice				
Mean (± SD)	11.1 (± 8.9)	13.8 (± 9.6)	< 0.01[b]	
Patient care hours per week				
Mean (± SD)	28.5 (± 11.9)	23.6 (± 12.1)	< 0.01[c]	
Patient visits per week				
Mean (± SD)	37.1 (± 18.5)	31.5 (± 18.9)	< 0.01[d]	
Qualification (n, %)			< 0.01	
Diploma	52 (5.9%)	10 (8.6%)		
Advanced diploma	7 (0.8%)	2 (1.7%)		
Bachelor's degree	197 (22.5%)	21 (18.1%)		
Master's degree	604 (68.9%)	77 (69.4%)		
PhD	1 (0.1%)	4 (3.4%)		
Other	15 (1.7%)	2 (1.7%)		
Involved in as an osteopath				
Clinical supervision	76 (8.7%)	74 (63.8%)	< 0.01	18.54 [11.87, 28.96]
Professional organisations	68 (7.8%)	39 (33.6%)	< 0.01	6.02 [3.81, 9.51]
Research	24 (2.7%)	30 (25.9%)	< 0.01	12.39 [6.93, 22.13]
Volunteer	126 (14.4%)	33 (28.4%)	< 0.01	2.36 [1.51, 3.69]

[a] *d* = 0.34 95% CI [0.14–0.53]; [b] *d* = 0.31 95% CI [0.12–0.51]; [c] *d* = 0.41 95% CI [0.21–0.60]; [d] *d* = 0.30 95% CI [0.09–0.52] (*d:* Cohen's *d* effect size)

Table 2

Practice Characteristics of Australian Osteopaths Who Reported Involvement in University Teaching in the Preceding 12 Months Compared With Those Who Reported No Involvement

	No (n = 893)	**Yes** (n = 98)	***p*-value**	**ORc [95% CI]**
Practice location				
Urban practice	730 (83.3%)	90 (77.6%)	0.12	-
More than one practice location	304 (34.7%)	43 (37.1%)	0.61	-
Co-located with other health professionals (of those who answered "yes")				
Osteopath	565 (64.5%)	78 (67.2%)	0.56	-
General practitioner	64 (7.3%)	8 (6.9%)	0.87	-
Specialist medical practitioner	29 (3.3%)	2 (1.7%)	0.36	-
Podiatrist	133 (15.2%)	14 (12.1%)	0.37	-
Physiotherapist	127 (14.5%)	17 (14.7%)	0.96	-
Exercise physiologist	107 (12.2%)	17 (14.7%)	0.45	-
Occupational therapist	17 (1.9%)	2 (1.7%)	0.87	-
Psychologist	163 (18.6%)	28 (24.1%)	0.16	-
Massage therapist	443 (50.6%)	58 (50.0%)	0.91	-
Acupuncturist	164 (18.7%)	24 (20.7%)	0.61	-
Naturopath	168 (19.2%)	25 (21.6%)	0.54	-
Dietician	65 (7.4%)	7 (6.0%)	0.59	-
Nutritionist	69 (7.9%)	9 (7.8%)	0.96	-
Send referrals to other health professionals (of those who answered "yes")				
Osteopath	441 (50.3%)	65 (56.0%)	0.25	-
General practitioner	769 (87.8%)	109 (94.0%)	0.05	-
Specialist medical practitioner	374 (42.7%)	69 (59.5%)	< 0.01	1.97 [1.33, 2.92]
Podiatrist	578 (66.0%)	73 (62.9%)	0.51	-
Physiotherapist	285 (32.5%)	46 (39.7%)	0.12	-
Exercise physiologist	343 (39.2%)	55 (47.4%)	0.09	-
Occupational therapist	84 (9.6%)	22 (19.0%)	< 0.01	2.21 [1.31, 3.70]
Psychologist	294 (33.6%)	55 (47.4%)	< 0.01	1.78 [1.21, 2.64]
Massage therapist	586 (66.9%)	85 (73.3%)	0.16	-
Acupuncturist	391 (44.6%)	60 (51.7%)	0.15	-

	No (n = 893)	**Yes** (n = 98)	***p*-value**	**ORc [95% CI]**
Naturopath	416 (47.5%)	61 (52.6%)	0.30	-
Dietician	143 (16.3%)	24 (20.7%)	0.24	-
Nutritionist	113 (12.9%)	16 (13.8%)	0.78	-
Receive referral from other health professionals (of those who answered "yes")				
Osteopath	530 (60.5%)	84 (72.4%)	0.01	1.71 [1.11, 2.63]
General practitioner	780 (89.0%)	106 (91.4%)	0.44	-
Specialist medical practitioner	198 (22.6%)	39 (33.6%)	< 0.01	1.73 [1.14, 2.63]
Podiatrist	423 (48.3%)	48 (41.4%)	0.16	-
Physiotherapist	234 (26.7%)	32 (27.6%)	0.84	-
Exercise physiologist	222 (25.3%)	36 (31.0%)	0.19	-
Occupational therapist	48 (5.5%)	13 (11.2%)	0.02	2.17 [1.14, 4.15]
Psychologist	129 (14.7%)	25 (21.6%)	0.06	-
Massage therapist	661 (75.5%)	93 (80.2%)	0.26	-
Acupuncturist	316 (36.1%)	54 (46.6%)	0.03	1.54 [1.04, 2.28]
Naturopath	339 (38.7%)	61 (52.6%)	< 0.01	1.75 [1.19, 2.59]
Dietician	31 (3.5%)	8 (6.9%)	0.08	-
Nutritionist	47 (5.4%)	8 (6.9%)	0.50	-
Diagnostic imaging (of those who answered "often")				
Referral for imaging	67 (7.6%)	6 (5.2%)	0.34	-
Investigation of unknown pathologies	655 (74.8%)	87 (75.0%)	0.96	-
Investigation of suspected diagnosis	747 (85.3%)	88 (75.9%)	< 0.01	0.54 [0.34, 0.86]
Investigation of potential fractures	654 (74.7%)	96 (82.8%)	0.06	-
Rule out risk factors prior to treatment	231 (26.4%)	41 (35.3%)	0.04	1.52 [1.01, 2.30]
General screening of the spine	27 (3.1%)	5 (4.3%)	0.41	-
Patient assessment (of those who answered "yes")				
Orthopaedic testing	853 (97.4%)	115 (99.1%)	0.24	-
Clinical assessment algorithm	410 (46.8%)	58 (50.0%)	0.51	-
Neurological testing	807 (92.1%)	111 (95.7%)	0.17	-
Screening questionnaire	562 (64.2%)	71 (61.2%)	0.53	-
Cranial nerve testing	580 (66.2%)	92 (79.3%)	< 0.01	1.95 [1.21, 3.13]

Table 3

Clinical Management Characteristics of Australian Osteopaths Who Reported Involvement in University Teaching in the Preceding 12 Months Compared With Those Who Reported No Involvement

	No (n = 893)	**Yes** (n = 98)	***p*-value**	**ORc [95% CI]**
Discuss with patients (of those who answered "often")				
Diet/nutrition	329 (37.6%)	46 (39.7%)	0.67	-
Smoking/alcohol/drug use	157 (18.0%)	22 (19.0%)	0.79	-
Physical activity	781 (89.3%)	105 (90.5%)	0.68	-
Occupation health & safety	448 (51.3%)	58 (50.4%)	0.87	-
Pain counselling	235 (28.7%)	15 (12.9%)	0.67	-
Stress	434 (49.7%)	55 (47.4%)	0.64	-
Nutritional supplements	224 (25.6%)	28 (24.1%)	0.73	-
Medication	342 (39.1%)	49 (42.6%)	0.47	-
Patient presentations (of those who answered "often")				
Neck pain	860 (98.3%)	111 (95.7%)	0.06	-
Thoracic pain	806 (92.1%)	103 (88.8%)	0.22	-
Low back pain	863 (98.7%)	114 (98.3%)	0.68	-
Hip musculoskeletal pain	659 (75.3%)	85 (73.9%)	0.74	-
Knee musculoskeletal pain	419 (48.1%)	72 (62.1%)	< 0.01	1.77 [1.18, 2.63]
Ankle musculoskeletal pain	280 (32.1%)	53 (45.7%)	< 0.01	1.78 [1.20, 2.63]
Foot musculoskeletal pain	247 (28.3%)	47 (40.5%)	< 0.01	1.72 [1.16, 2.57]
Shoulder musculoskeletal pain	705 (80.8%)	96 (82.8%)	0.60	-
Elbow musculoskeletal pain	219 (25.1%)	32 (27.8%)	0.53	-
Wrist musculoskeletal pain	158 (18.1%)	30 (26.1%)	0.04	1.60 [1.02, 2.51]
Hand musculoskeletal pain	99 (11.4%)	22 (19.0%)	0.02	1.82 [1.09, 3.03]
Postural disorders	604 (69.1%)	71 (61.7%)	0.11	-
Degenerative spine conditions	527 (60.4%)	72 (62.1%)	0.72	-
Headache disorders	794 (90.8%)	98 (84.5%)	0.03	0.55 [0.31, 0.95]
Migraine disorders	362 (41.5%)	38 (32.8%)	0.07	-
Spine health maintenance	415 (47.6%)	43 (37.1%)	0.03	0.65 [0.43, 0.97]
Chronic or persistent pain	559 (64.0%)	71 (61.2%)	0.55	-

	No (n = 893)	**Yes** (n = 98)	***p*-value**	**ORc [95% CI]**
Tendinopathies	361 (41.4%)	49 (42.2%)	0.85	-
Temporomandibular joint disorders	157 (18.0%)	26 (22.4%)	0.25	-
Non-musculoskeletal disorders	103 (11.9%)	23 (19.8%)	0.01	1.83 [1.11, 3.01]
Patient subgroups (of those who answered "treat 'often'")				
Up to 3 years of age	136 (15.6%)	20 (17.2%)	0.65	-
4 to 18 years of age	238 (27.2%)	32 (27.6%)	0.93	-
Over 65 years of age	507 (51.2%)	65 (6.6%)	0.70	-
Aboriginal & Torres Strait Islander peoples	4 (0.5%)	3 (2.6%)	0.04	5.77 [1.28, 26.13]
Pregnancy	305 (34.9%)	39 (33.6%)	0.79	-
Non-English speaking	32 (3.7%)	1 (0.9%)	0.09	-
Sport injuries	449 (51.4%)	52 (44.8%)	0.18	-
Worker injury (compensable)	90 (10.3%)	13 (11.3%)	0.74	-
Work injury (non-compensable)	304 (34.7%)	37 (31.9%)	0.54	-
Traffic injury (compensable)	48 (5.5%)	6 (5.3%)	0.92	-
Traffic injury (non-compensable)	97 (11.1%)	17 (14.7%)	0.26	-
Post-surgery	67 (7.7%)	12 (10.4%)	0.30	-
Manual therapy (of those who answered "use 'often'")				
Counterstrain	371 (42.4%)	49 (42.2%)	0.96	-
Muscle energy technique	702 (80.2%)	86 (74.1%)	0.13	-
High-velocity, low-amplitude manipulation	563 (64.3%)	69 (59.5%)	0.31	-
Joint manipulation	338 (38.7%)	55 (47.4%)	0.07	-
Soft tissue technique	759 (86.8%)	89 (76.7%)	< 0.01	0.50 [0.31, 0.80]
Myofascial release	542 (62.0%)	70 (60.3%)	0.73	-
Visceral techniques	78 (8.9%)	20 (17.2%)	< 0.01	2.13 [1.25, 3.63]
Lymphatic pump	67 (7.7%)	17 (14.7%)	0.01	2.07 [1.17, 3.67]
Autonomic balancing	127 (14.5%)	30 (25.9%)	< 0.01	2.05 [1.30, 3.24]
Biodynamics	138 (15.8%)	17 (14.7%)	0.75	-
Functional technique	242 (27.7%)	28 (24.1%)	0.42	-
Balanced ligamentous tension	309 (35.3%)	40 (34.5%)	0.86	-

	No (n = 893)	**Yes** (n = 98)	***p*-value**	**ORc [95% CI]**
Chapman's reflexes	21 (2.4%)	3 (2.6%)	0.90	-
Trigger point therapy	240 (27.5%)	18 (15.5%)	< 0.01	0.48 [0.29, 0.82]
Osteopathy in the cranial field	204 (23.3%)	29 (5.0%)	0.69	-
Facilitated positional release	148 (17.0%)	18 (15.5%)	0.70	-
Dry needling	213 (24.4%)	21 (18.1%)	0.13	-
Exercise prescription	651 (74.5%)	82 (70.7%)	0.38	-
Shockwave therapy	16 (1.8%)	2 (1.7%)	0.64	-
Ultrasound	24 (2.7%)	3 (2.6%)	0.61	-
TENS	16 (1.8%)	3 (2.6%)	0.58	-
Instrument manipulation	1 (0.1%)	1 (0.9%)	0.22	-
Instrument-assisted soft tissue	12 (1.4%)	0	0.22	-
Sport taping	108 (12.4%)	14 (12.1%)	0.93	-
Expanded practice scope (of those who answered "definitely")				
Prescribing rights	224 (25.6%)	33 (28.4%)	0.51	-
Referral rights to orthopaedic surgeon	611 (69.8%)	92 (79.3%)	0.03	1.65 [1.03, 2.65]
Referral rights to paediatrician	469 (53.6%)	71 (61.2%)	0.12	-
Referral rights to sports medicine specialist	690 (78.9%)	100 (86.2%)	0.07	-
Referral rights to rheumatologist	551 (63.0%)	78 (67.2%)	0.37	-
Referral rights to other medical specialist	0	1 (0.9%)	0.12	-
Expanded diagnostic imaging rights	731 (83.5%)	91 (78.4%)	0.17	-
Research (of those who answered "strongly agree")				
Help patients understand osteopathy	395 (45.1%)	48 (41.4%)	0.45	-
Help general practitioners and other health professionals understand osteopathy	590 (70.4%)	80 (70.2%)	0.96	-
Provide scientific evidence	456 (55.1%)	59 (52.7%)	0.62	-
Irrelevant to the development of osteopathy*	499 (60.5%)	64 (57.1%)	0.50	-
Impact on practice^	212 (24.2%)	27 (23.3%)	0.83	-

* "strongly disagree"; ^ "high"

Table 4

Adjusted Odds Ratios for Significant Practitioner and Clinical Management Characteristics of Australian Osteopaths Who Reported Involvement in University Teaching in the Preceding 12 Months

	OR	95% CI	*p*-value
Patient care hours per week	0.95	0.92, 0.97	< 0.01
Gender ("female")	2.24	1.20, 4.17	0.011
Involved in clinical supervision ("yes")	15.40	8.62, 27.51	< 0.01
Involved in osteopathy professional association ("yes")	2.27	1.11, 4.66	0.025
Involved in research ("yes")	8.69	3.55, 21.25	< 0.01
Send referrals to a medical specialist ("yes")	1.94	1.08, 3.49	0.027
Treat knee musculoskeletal complaints ("often")	3.76	2.00, 7.08	< 0.01
Treat sports injuries ("often")	0.45	0.24, 0.83	0.011

From a patient assessment perspective, Australian osteopaths involved in university teaching were nearly twice as likely to report using cranial nerve testing than osteopaths who reported not participating in teaching (OR 1.95) (Table 2). They were also more likely to refer patients to other health professionals and to report receiving referrals from a range of medical and complementary medicine practitioners (Table 2).

Australian osteopaths who reported being involved in university teaching were 60% more likely to report treating upper and lower limb musculoskeletal complaints and non-musculoskeletal complaints (OR 1.83). They were 65% less likely to report patients presenting for spinal health maintenance (OR 0.65) and 55% less likely to report treating headache disorders (OR 0.55) compared to osteopaths who are not involved in university teaching (Table 3). With respect to manual therapy interventions, Australian osteopaths involved in university teaching were more than twice as likely to use visceral (OR 2.13), lymphatic (OR 2.07) and autonomic balancing (OR 2.05) techniques and less likely to use trigger point therapy (OR 0.48) compared to osteopaths who reported not teaching at university (Table 3).

Adjusted odds ratios for variables that were identified as being statistically significant in the backward binary logistic regression model are described in Table 4. Australian osteopaths who reported being involved in university teaching in the preceding 12 months were 15 times more likely to be involved in clinical supervision (ORa 15.40) and over eight times more likely to be involved in research (ORa 8.69) when compared to osteopaths not involved in university teaching.

Discussion

This study sought to identify the demographic, practice and clinical management characteristics of Australian osteopaths who reported being involved in university teaching related to osteopathy. There are opportunities for osteopaths to become involved in teaching in one of the three accredited Australian programs, however there is no research that profiles who they are or how they practise. Our work also contributes to a greater understanding of who is teaching the future Australian osteopathy workforce. There is further potential for our work through contributing data for education providers to utilise for continuing governance and accreditation requirements. The current study has illuminated the characteristics of osteopaths who reported engaging in university teaching in the 12 months prior to data collection, and this gives insight into the staffing of health profession training. The study also highlights the level of industry engagement in osteopathy education—a key element of university education in Australia (Coaldrake, 2019). The latter two outcomes provide evidence for the relationship between the Australian osteopathy profession and universities.

Australian osteopaths who reported being involved in university teaching were more than twice as likely to be female compared to their non-teaching counterparts. Reasons for why more females are involved in university teaching may include workplace flexibility with respect to family commitments (Fitzgerald & Vaughan, 2016), reduced patient contact time to assist with their own musculoskeletal health (McLeod et al., 2018) or that female practitioners may have a greater predilection towards teaching (Richardson & Watt, 2006). It is also possible that this outcome is the result of there being more female osteopaths (at 54.7% of registered osteopaths) in Australia than males at the time of the study (Osteopathy Board of Australia, 2018). Regardless, why female Australian osteopaths choose to participate in university teaching requires additional exploration.

Those Australian osteopaths who reported being involved in university teaching were nearly nine times more likely to be involved in research and 15 times more likely to be involved in clinical supervision than those who do not teach at university. Their involvement in research does not appear to be reflected in university qualifications, as very few Australian osteopaths have a higher degree by research (Adams et al., 2018). However, these osteopaths may be involved through coursework master's projects for pre-professional students or in other aspects of research in the profession. Osteopathy has a limited research base and few active researchers, particularly in Australia, and the current study highlights an opportunity to further engage those osteopaths involved in university teaching in research, either formally or informally.

A significant association was observed between participating in university teaching and clinical supervision in the Australian osteopathy profession. Clinical education in osteopathy is undertaken in an on-campus, student-led environment (Vaughan, Macfarlane, & Florentine, 2014). It is likely that osteopaths who choose to teach at

university are combining this with work as a clinical supervisor so as to make the most of the time they are spending on the university campus. Combining both teaching and clinical supervision may also be a reflection of the altruism motivator described by Dahlstrom et al. (2005), however this assertion requires additional research. Although participation in teaching in other health professions is common, it is less so in osteopathy. A small number of Australian osteopaths involved in university teaching and clinical supervision are undertaking formal courses at graduate level to develop their teaching practice (Vaughan, 2020). There is little data on this at present, however it does provide an opportunity to explore the role of these graduate qualifications and their impact on teaching and clinical supervision in osteopathy.

Australian osteopaths involved in university teaching reported treating a range of patient presentations consistent with the broader profession, in addition to a range of manual therapy and adjunct interventions (Orrock, 2009). This result is encouraging, as it provides initial evidence that those osteopaths involved in university teaching are not significantly different from their non-teaching counterparts with respect to the conditions they treat or the interventions they use. Where they are significantly different from their non-teaching counterparts appears to be extremity (limb) complaints, however the reason for this requires further research. These results support these educators being seen as role models for practice that reflects work integrated learning principles of preparing for the real world—one that is non-specialised and broad in scope, reflects the curriculum and engages in interprofessional relationships.

The current work provides an initial snapshot of the university teaching workforce in the Australian osteopathy profession. As such, there are a number of additional research opportunities that could be built on this work. Some of these possibilities include qualitative work to understand why Australian osteopaths choose to become involved in university teaching, challenges and opportunities associated with this involvement (including its influence on an osteopaths' clinical practice) and participation in professional development for university teaching. There are also opportunities to explore conceptions of teaching and learning and practitioner attitudes towards teaching.

Limitations

The cross-sectional and self-report nature of the design of the ORION survey is a limitation when interpreting the results of the study. It is known that cross-sectional self-report designs are potentially susceptible to social desirability bias and recall bias. How practitioners defined university teaching when completing the questionnaire is open to interpretation and may have skewed the results, and we were not able to ascertain whether respondents were involved in university teaching full-time, part-time or on a casual basis.

A further limitation is the timing of the data collection and the change in the number of osteopaths who now are part of the profession. Data collection took place in mid–late 2016, and this may limit the generalisability of the work to contemporary osteopathy

practice, as it is unclear if the training of osteopaths has remained the same for those who are now registered osteopaths. The nature of the university teaching item in the ORION survey also means that a practitioner need not have been involved in university teaching at the time of survey completion, rather they could have been involved at any time in the preceding 12 months. The items on the ORION survey are open to individual interpretation, and this could change the response to some items. It is also possible that there are other practice characteristics that are associated with participating in university teaching that were not explored in the ORION survey. Limitations notwithstanding, the methodology employed to establish ORION (a PBRN) could be replicated for the Australasian health professional education community. Such data would provide a greater understanding of who is contributing to the development of our future health workforce.

Conclusion

This nationally representative survey of the Australian osteopathy profession demonstrates 9.9% of the profession are engaged in university teaching. Our secondary analysis of this data has highlighted several characteristics associated with involvement in university teaching that begin to shed light on who comprises the osteopathy teaching workforce in Australia. This data could be used to help further develop a teaching workforce that combines practitioners with a range of skills and experience and develops their teaching and pedagogical knowledge and practices for the benefit of the profession.

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