



Prevalence and profile of Australian osteopaths treating older people

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ABSTRACT

Objectives: To explore the characteristics of the Australian osteopathy workforce who participate in the management of older patients with musculoskeletal complaints.

Design: Secondary analysis of a cross-sectional survey of osteopaths.

Setting: The Osteopathy Research and Innovation Network (ORION), an Australian practice-based research network.

Main outcome measures: The demographic, practice and treatment characteristics of osteopaths who identify as ‘always’ or ‘often’ treating patients aged 65 years or over.

Results: Over half (58%) of total participants (n = 992) indicated often treating older people and this was associated with referral patterns with other health professionals and a non-urban practice location. Osteopaths providing care to older people were more likely to discuss diet/nutrition and medications, and provide pain counselling. Osteopaths who treated older adults were more likely to treat shoulder musculoskeletal disorders, degenerative spine disorders, chronic or persistent pain, and tendinopathies.

Conclusions: A substantial proportion of Australian osteopaths treat older adults frequently. The potential value and impact of osteopathy in managing the health needs of an ageing population warrants close examination from both researchers and policy makers.

1. Introduction

Ageing affects all systems of the body including the musculoskeletal system. Chronic musculoskeletal conditions such as back and neck pain, osteoarthritis and rheumatoid arthritis contribute disproportionately to the burden of disease in Australia.¹ Among the elderly, complications associated with these conditions often require protracted management.¹ With Australia’s elderly population projected to double by 2057,² the demand for health services that can manage musculoskeletal conditions will increase substantially. Complicating this scenario is the number of older people who present to public hospitals with non-life threatening musculoskeletal conditions. In 2016–17, there were 1.6 million emergency department presentations among people aged 65 and over, with people aged 85 and over accounting for almost 1 in 4 (23%) of those presentations.³ For people 65–74 years old, ‘back and spine pain’ was the fifth most common diagnosis at presentation; for people over the age of 85, the most frequent diagnosis was ‘other symptoms and signs

involving the nervous and musculoskeletal systems’.³

Given the prevalence of chronic musculoskeletal conditions among the elderly and the increasing costs associated with hospitalisations for these conditions, there has been a growing interest in non-hospital-based, non-pharmacological management strategies that can deliver improvements in functional independence and quality of life.⁴ Due to the complex nature of disease in the elderly, managing the health of older people requires a holistic approach that accounts for the individual’s psychological, social, functional and physiological capacities. In Australia, this interest has contributed to a rise in the use of private allied health services such as physiotherapy, chiropractic and osteopathy.⁵ However, the level of evidence supporting the use of these interventions for managing musculoskeletal conditions in the elderly is limited.^{6–10}

Osteopaths in Australia are primarily in private practice¹¹ yet are included under the publicly-funded Chronic Disease Management scheme, where general medical practitioners refer people with chronic

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diseases that require team care to allied health practitioners.^{12,13} There is an emerging evidence base for the manual therapies used by osteopaths in the adult population, including for spinal manipulative therapy in low back pain, migraine, cervicogenic headache and cervicogenic dizziness, and also for massage in chronic low back and neck pain.¹⁴ A number of studies suggest benefit for the management of musculoskeletal complaints that affect the older patient. Findings from a systematic review and meta-analysis support the use of manual therapy in the treatment of the pain, stiffness and dysfunction of osteoarthritis.¹⁶ In a randomised trial of 206 individuals comparing usual care to multimodal exercise or manual therapy intervention there was significant improvement in pain and function in both interventions after one year.¹⁷ There is also evidence for the use of manual therapy for the older patient in other joint pathologies (e.g. thumb,^{18,19} foot & ankle²⁰). Manual therapy may also play a role in the management of spinal complaints in the older patient.^{6,8–10} For example, short and long-term improvements in back and neck disability following a combination of spinal manipulative therapy and exercise have been demonstrated in the older patient.⁷ Emerging evidence also exists for the use of manual therapy for gait problems and falls prevention.^{21,22} Taken together, these studies suggest some benefit for the management of those musculoskeletal complaints that affect the older patient.

From a recent Australian survey utilising a nationally representative sample of 49.1% of registered osteopaths,¹¹ 57.7% of participants reported often treating older people (65 years and older). However, little is known about the specific characteristics of osteopaths providing care to older patients and the clinical techniques they employ. In direct response, the aim of this study was to explore the characteristics of the Australian osteopathy workforce who participate in the management of older patients with musculoskeletal complaints.

2. Materials and methods

2.1. Study design

This study reports secondary analysis of a cross-sectional survey. The current study was approved by the Human Ethics Committee of the University of Technology Sydney, Australia (approval # 2014000759).

2.2. Setting

This study analysed data from the Osteopathy Research and Innovation Network (ORION) Project. Details of this project have been published elsewhere.¹⁵ Briefly, the ORION project is the first national practice-based research network (PBRN) focusing on Australian osteopaths.

2.3. Participants

The participating sample of the ORION project is nationally representative of the wider osteopaths registered in Australia on a number of key indicators.¹⁵ At the time of recruitment of the ORION project, there were 2,020 registered practising osteopaths in Australia, and a total of 992 osteopaths completed the ORION practitioner questionnaire, presenting a response rate of 49.1%.¹⁵

2.4. Data source

ORION was established through an online workforce questionnaire (accessed via SurveyGizmo) along with a consent form which was distributed to all registered osteopaths via a number of channels from July to December 2016. This study reports secondary analysis of the data collected through this questionnaire.

2.5. Instrument

A 27-item questionnaire was used in this project to collect information on practitioner and practice characteristics, clinical management and research. Participants were asked about their age, gender, number of years in private practice, highest level of osteopathy professional qualification, membership in professional organisation and roles as an osteopath in last 12 months. The ORION participants were also asked about average patient care hours and patient visits per week, number of practice locations, types of other health professionals active in the same practice location, referral relationships, area of practice location (urban/rural/remote), state/territory of practice, use and reason of diagnostic imaging, techniques of clinical diagnosis, use of electronic records and software, and the use of eHealth system, HICAPS and Medicare Easyclaim (both electronic payment systems) in the practice characteristics section. The clinical management section of the questionnaire included questions about frequency of discussion with patients regarding lifestyle aspects as part of care and management plan, frequency of treating patients within a range of pre-specified conditions including musculoskeletal disorders and non-musculoskeletal disorders, frequency of treating different patient subgroups such as older people, pregnant women, people with sports-related and work-related injuries, and frequency of employing a range of techniques in patient management. Finally, the ORION participants were asked about their perceptions of the impact of osteopathy-related research in the research module.

2.6. Outcome variable and exposure variables

The outcome variable in this study was osteopaths treating older people who were at least 65 years old. The frequency of treating older people was reported as *never*, *rarely*, *sometimes* and *often* in the raw data. In our analysis, the first three were combined as *not often* while the remaining was kept as discrete categories. Variables related to osteopathy practitioner, practice characteristics and clinical management were the exposures in our analysis. Data on age, years in private practice, average patient care hours and patient visits per week were collected in continuous form and used directly in this analysis. The variables related to use of diagnostic imaging, frequency of discussion about care and management plan, treating patient with pre-specified conditions, treating different patient subgroups and employing different techniques were reported as *never*, *rarely*, *sometimes* and *often*. We again aggregated the first three categories as *not often* while the rest remained the same. The other variables considered in our analysis were reported and employed in binary form (*yes*, *no*).

2.7. Statistical analyses

The association between exposures and the outcome - osteopaths treating older people - were examined using bivariate statistical analyses, namely the chi-square and t-tests. Following on from the bivariate analyses, a multiple binary logistic regression model was generated, with the outcome variable being osteopaths treating older people (*not often* / *often*). To generate the logistic regression model, based on the bivariate statistical analyses, those exposure variables with p-value ≤ 0.10 were all entered into a logistic regression model, then a backward stepwise elimination process, using a likelihood ratio test, was employed to determine the most important factors associated with osteopaths often treating older people. Odds ratios were generated for each statistically significant exposure. All statistical analyses were performed using Stata/SE version 15.0.

3. Results

Of the 992 registered osteopaths included in this analysis, 572 (58%) had often treated older people while 419 (42%) indicated

Table 1
Osteopaths' Characteristics.

Variables	Not-often n = 419	Often n = 572	p-value
Age (years) [mean ± SD]	35.5 ± 9.0	39.8 ± 11.7	< 0.001
Gender n(%)			
Male	163 (38.9)	252 (44.1)	0.104
Female	256 (61.1)	320 (55.9)	
Qualification n(%)			
Diploma/Advanced Diploma	17 (4.1)	53 (9.3)	0.001
Bachelor Degree	80 (19.1)	134 (23.4)	
Masters Degree/PhD	315 (75.2)	370 (64.7)	
Others	7 (1.7)	15 (2.6)	
Years in practice [mean ± SD]	9.4 ± 7.1	12.8 ± 9.9	< 0.001
Patient care hours per week [mean ± SD]	27.2 ± 11.8	29.0 ± 11.8	0.019
Patient visits per week [mean ± SD]	33.8 ± 16.3	39.1 ± 19.1	< 0.001

otherwise. The data from one respondent was missing from this item and as such they were excluded from the analysis. **Table 1** provides details of the association between practitioner characteristics and osteopaths treating older adults. With the exception of gender, descriptive statistics indicated statistically significant differences for all practitioner characteristics ($p < 0.05$). Specifically, increased age and practising years, increased patient care hours and visits were positively associated with osteopaths who often treated older adults compared to those osteopaths who did not often treat older adults.

Table 2 presents descriptive statistics of osteopaths practice characteristics associated with often treating older adults or not. Osteopaths practising in an urban location were less likely to frequently treat older adults compared to those practising in a non-urban location ($p < 0.001$). Similarly, osteopaths who often treated older adults were more likely to refer patients to an exercise physiologist ($p = 0.001$), a psychologist/counsellor ($p = 0.008$) and a nutritionist ($p = 0.027$). Furthermore, the same group of osteopaths were also more likely to receive patient referrals from a general medical practitioner ($p < 0.001$), a podiatrist ($p = 0.031$), an exercise physiologist ($p = 0.027$), an occupational therapist ($p = 0.004$), a massage therapist ($p = 0.031$) or a naturopath ($p = 0.010$). Osteopaths frequently treating older adults were also more likely to refer patients for diagnostic imaging ($p = 0.007$).

With regard to care and management plans, higher likelihoods of discussing diet/nutrition ($p = 0.040$), medications ($p = 0.009$) and pain counselling ($p = 0.017$) were observed for those osteopaths who often treated older adults (**Table 3**). Osteopaths who often treated older adults were also more likely to treat patients with pre-specified conditions (all $p < 0.05$) and to employ peripheral joint manipulation ($p < 0.001$), functional techniques (i.e. techniques that reduce tension in soft tissue) ($p = 0.003$) and exercise prescription ($p = 0.047$) in managing their patients.

The multiple logistic regression results identified a number of predictors for osteopaths often treating older adults (**Table 4**). Our findings show that the odds of often treating older adults were increased by 4% for every year (12 month) increase in the age of the osteopath (OR = 1.04; 95%CI: 1.02, 1.06; $p < 0.001$). Osteopaths practising in an urban location were less likely to frequently treat older adults (OR = 0.52; 95%CI: 0.34, 0.81; $p = 0.004$), compared with osteopaths practising in a non-urban locations. We also observed that increased patient visits were positively associated with osteopaths who often treated older adults (OR = 1.01; 95%CI: 1.00, 1.02; $p = 0.025$). Furthermore, osteopaths who often treated older adults were around twice as likely to receive patient referrals from general medical practitioners (OR = 1.97; 95%CI: 1.15, 3.36; $p = 0.014$). Osteopaths who often treated older adults also had higher reported use of cranial nerve testing techniques to assist in clinical diagnosis (OR = 1.54; 95%CI: 1.07, 2.23;

Table 2
Characteristics of Osteopaths' clinical management.

Variables	Not-often n = 419	Often n = 572	p-value
Practice location n (%)			
Urban	350 (88.2)	423 (77.2)	< 0.001
More than 1 practice location	142 (33.9)	205 (35.8)	0.525
Health professionals working in same practice location n (%)			
Another Osteopath	277 (66.1)	365 (63.8)	0.454
General practitioner	23 (5.5)	49 (8.6)	0.065
Medical specialist	9 (2.1)	22 (3.8)	0.129
Podiatrist	59 (14.1)	87 (15.2)	0.620
Physiotherapist	62 (14.8)	81 (14.2)	0.778
Exercise physiologist	52 (12.4)	72 (12.6)	0.934
Occupational therapist	7 (1.7)	12 (2.1)	0.628
Psychologist/Counsellor	79 (18.9)	112 (19.6)	0.775
Massage therapist	215 (51.3)	285 (49.8)	0.644
Acupuncturist	88 (21.0)	99 (17.3)	0.142
Naturopath	81 (19.3)	111 (19.4)	0.977
Dietician	28 (6.7)	44 (7.7)	0.545
Nutritionist	29 (6.9)	48 (8.4)	0.393
Sending referrals to other health professionals n (%)			
Another Osteopath	203 (48.4)	303 (53.0)	0.159
General practitioner	365 (87.1)	513 (89.7)	0.208
Medical specialist	178 (42.5)	265 (46.3)	0.229
Podiatrist	264 (63.0)	386 (67.5)	0.143
Physiotherapist	131 (31.3)	199 (34.8)	0.245
Exercise physiologist	143 (34.1)	255 (44.6)	0.001
Occupational therapist	37 (8.8)	69 (12.1)	0.104
Psychologist/Counsellor	128 (30.5)	221 (38.6)	0.008
Massage therapist	288 (68.7)	382 (66.8)	0.517
Acupuncturist	181 (43.2)	269 (47.0)	0.232
Naturopath	201 (48.0)	275 (48.1)	0.974
Dietician	63 (15.0)	104 (18.2)	0.191
Nutritionist	43 (10.3)	86 (15.0)	0.027
Receiving referrals from other health professionals n (%)			
Another Osteopath	257 (61.3)	357 (62.4)	0.730
General practitioner	354 (84.5)	532 (93.0)	< 0.001
Medical specialist	91 (21.7)	146 (25.5)	0.165
Podiatrist	182 (43.4)	288 (50.3)	0.031
Physiotherapist	107 (25.5)	158 (27.6)	0.464
Exercise physiologist	94 (22.4)	164 (28.7)	0.027
Occupational therapist	15 (3.6)	46 (8.0)	0.004
Psychologist/Counsellor	57 (13.6)	97 (17.0)	0.150
Massage therapist	304 (72.6)	449 (78.5)	0.031
Acupuncturist	153 (36.5)	216 (37.8)	0.688
Naturopath	149 (35.6)	250 (43.7)	0.010
Dietician	12 (2.9)	27 (4.7)	0.138
Nutritionist	18 (4.3)	37 (6.5)	0.140
Referring patients for diagnostic imaging (done often) n (%)	20 (4.8)	53 (9.3)	0.007
Techniques used to assist in clinical diagnosis n (%)			
Orthopaedic testing	412 (98.3)	556 (97.2)	0.245
Clinical assessment algorithm	205 (48.9)	262 (45.8)	0.331
Neurological testing	386 (92.1)	531 (92.8)	0.675
Screening questionnaire	261 (62.3)	372 (65.0)	0.374
Cranial nerve testing	270 (64.4)	402 (70.3)	0.052

$p = 0.020$) compared to those osteopaths who do not often treat older adults. Finally, osteopaths often treating older adults were significantly and positively associated with treating patients with shoulder musculoskeletal disorders (OR = 1.77; 95%CI: 1.13, 2.76; $p = 0.012$), degenerative spine conditions (OR = 1.70; 95%CI: 1.19, 2.43; $p = 0.004$), chronic or persistent pain (OR = 1.71; 95%CI: 1.18, 2.48; $p = 0.004$) and tendinopathies (OR = 1.92; 95%CI: 1.32, 2.80; $p = 0.001$).

4. Discussion

This paper reports findings from a previous study, drawing upon a large national sample of osteopaths to examine the characteristics of the

Table 3
Characteristics of Osteopaths' clinical management.

Variables	Not-often n = 419	Often n = 572	p-value
Discussing as part of the management plan (done often) n (%)			
Diet/Nutrition	143 (34.2)	232 (40.6)	0.040
Smoking/Drugs/Alcohol	64 (15.3)	115 (20.1)	0.051
Physical activity/Fitness	372 (89.0)	514 (89.9)	0.661
Occupational health and safety	213 (51.1)	293 (51.3)	0.942
Pain counselling	95 (22.7)	169 (29.5)	0.017
Stress management	196 (46.9)	293 (51.4)	0.161
Nutritional supplements	104 (24.9)	148 (25.9)	0.723
Medications	145 (34.8)	246 (43.0)	0.009
Treating patients with the following conditions (done often) n (%)			
Neck pain	403 (96.4)	567 (99.1)	0.003
Thoracic pain	369 (88.3)	539 (94.2)	0.001
Low back pain	408 (97.6)	568 (99.5)	0.011
Hip musculoskeletal disorders	276 (66.2)	468 (81.8)	< 0.001
Knee musculoskeletal disorders	153 (36.6)	338 (59.4)	< 0.001
Ankle musculoskeletal disorders	92 (22.1)	241 (42.2)	< 0.001
Foot musculoskeletal disorders	83 (19.9)	211 (37.0)	< 0.001
Shoulder musculoskeletal disorders	306 (73.4)	495 (86.7)	< 0.001
Elbow musculoskeletal disorders	61 (14.6)	190 (33.4)	< 0.001
Wrist musculoskeletal disorders	46 (11.0)	142 (24.9)	< 0.001
Hand musculoskeletal disorders	31 (7.5)	90 (15.8)	< 0.001
Postural disorders	256 (61.2)	419 (73.5)	< 0.001
Degenerative spine conditions	196 (47.0)	403 (70.6)	< 0.001
Headache disorders	364 (87.1)	527 (92.3)	0.007
Migraine disorders	128 (30.7)	272 (47.7)	< 0.001
Spinal health maintenance or prevention	175 (42.0)	283 (49.6)	0.017
Chronic or persistent pain	213 (51.0)	417 (73.2)	< 0.001
Tendinopathies	112 (26.8)	298 (52.3)	< 0.001
Temporomandibular joint disorders	57 (13.7)	126 (22.1)	0.001
Non-musculoskeletal disorders	43 (10.4)	83 (14.7)	0.047
Using the following techniques/management (done often) n (%)			
Strain/Counterstrain	163 (39.0)	256 (44.8)	0.066
Muscle energy techniques	333 (79.5)	454 (79.5)	0.989
HVLA (high velocity low amplitude)/Spinal manipulation	262 (62.5)	369 (64.6)	0.498
Peripheral joint manipulation	140 (33.4)	253 (44.5)	< 0.001
Soft tissue	355 (84.7)	493 (86.3)	0.474
Myofascial release	257 (61.3)	355 (62.3)	0.763
Cranial techniques	89 (21.3)	144 (25.2)	0.151
Facilitated positional release	61 (14.6)	105 (18.5)	0.106
Needling techniques	95 (22.7)	139 (24.4)	0.531
Visceral techniques	45 (10.7)	53 (9.3)	0.448
Lymphatic pump	31 (7.4)	53 (9.3)	0.293
Autonomic balancing	64 (15.3)	93 (16.3)	0.658
Biodynamic techniques	62 (14.8)	93 (16.3)	0.524
Functional techniques	94 (22.4)	176 (30.8)	0.003
Balanced ligamentous tension/Ligamentous articular strain	140 (33.4)	209 (36.6)	0.299
Exercise prescription	297 (70.9)	436 (76.5)	0.047
Chapmans reflexes	8 (1.9)	16 (2.8)	0.365
Shockwave therapy	6 (1.4)	12 (2.1)	0.434
Ultrasound therapy	10 (2.4)	17 (3.0)	0.574
TENS or other electrotherapy	5 (1.2)	14 (2.5)	0.153
Instrument-assisted soft tissue mobilisation	2 (0.5)	10 (1.8)	0.070
Trigger point therapy	109 (26.0)	149 (26.1)	0.964
Sports taping	48 (11.5)	74 (13.0)	0.471

osteopathy workforce who participate in the management of older adults. With Australia's elderly population projected to double by 2057,² there is an increasing opportunity for osteopaths to contribute to the wider inter-professional management of musculoskeletal complaints in this population especially given their significant impact on health-related quality of life.^{23–25} Musculoskeletal complaints are common among older adults, with back pain affecting approximately 30% of those over the age of 60.²⁶

According to our secondary analysis of a nationally representative

Table 4
Predictors of osteopaths' who frequently treated older people.

Variables	Odds Ratio	95% CI	p-value
Age (years)	1.04	(1.03, 1.06)	< 0.001
Practice location			
Urban	1.00	–	–
Non-urban	2.07	(1.39, 3.08)	< 0.001
Sending referrals to exercise physiologists	1.60	(1.18, 2.16)	0.002
Receiving referrals from general practitioners	1.77	(1.10, 2.86)	0.019
Treat patient with following conditions (often)			
Elbow musculoskeletal disorders	1.55	(1.06, 2.25)	0.022
Degenerative spine conditions	1.91	(1.40, 2.59)	< 0.001
Chronic or persistent pain	1.89	(1.38, 2.58)	< 0.001
Tendinopathies	1.85	(1.33, 2.57)	< 0.001

sample of practising osteopaths, over half of the Australian osteopathy workforce report managing patients aged 65 years and older. It is estimated that 11%–15% of patients attending Australian osteopathy practices are over 60 years of age.^{27,28} Using a similar data collection strategy as the current work, researchers have reported that over 73.5% of Australian chiropractors manage patients in the 65 years and older age group.²⁹ The difference in the proportion of clinicians providing care to older patients across the two professions may be accounted for by the uneven distribution of the Australian osteopathy workforce with the majority practising in one state (Victoria).³⁰ Rural practice location also appeared to be associated with increased likelihood of patient management of older adults even though there are fewer osteopaths in rural and regional areas (up to 20% of the profession). Workforce distribution has an important influence on the quality of healthcare delivered in a region, primarily because it impacts access to health services in the community and overall health equity in the population.³¹ This may be related to accessibility of allied health services in these areas and possibly older populations being located in rural and regional areas. The results of this study are consistent with Australian chiropractic practice data,²⁹ highlighting the role of both osteopaths and chiropractors in the management of older adults in rural areas.

According to our analysis, increasing practitioner age and years in practice are associated with increased likelihood of their treating and managing older adults. It may be that these osteopaths have been engaged with the community as health professionals in their respective areas for many years and/or treating the same patient cohort for a number of years and continue to manage their musculoskeletal health as their patients age. Although this assertion requires further evaluation, longitudinal care has been shown to be beneficial for patient outcomes and satisfaction.^{32–34} It may also be that practitioners are seeking to provide care for this sub-population of patients or, alternatively, that older adults feel more comfortable accessing care from an older practitioner. However, little research has explored the health service preferences of older adults,

Osteopaths in the current study reported referring patients for exercise physiology, psychology or counselling, and nutritional advice, which is consistent with the work by Burke et al.²⁷ Although a substantial number of practitioners (over 85%) referred patients to a general practitioner, there was no significant difference between those who often managed older adults and those who did not. This referral pattern did not accord with work by Engel et al.³⁵ who explored Australian general practitioners' opinions about referrals from and to osteopaths (in addition to chiropractors) and which reported 30% of respondents received a referral from an osteopath. However, although the true extent of referral between osteopathy and general practice remains unclear, it is evident that such referral is occurring. Interdisciplinary care has been advocated for the management of pain in older adults.³⁶

and this approach appeared to be more common in the practitioner population who reported frequently managing older patients in the current study. Strategies to promote the co-management of older patients by general practitioners and osteopaths is an avenue for promoting interprofessional understanding and visibility that can be further explored.

Our current study suggests that osteopaths treating older adults are more likely to receive referrals from general practitioners. Osteopaths in Australia provide care under the Chronic Disease Management (CDM) (formerly Enhanced Primary Care) Plan, a government subsidised program that provides patients with access to allied health services for multidisciplinary care through referral from their general practitioner. However, our data do not allow us to determine whether these referrals are via the CDM scheme or otherwise. Other Australian research suggests that between 25–49% of osteopathy patients are referred by the patients' general practitioner through this scheme,³⁷ and this is consistent with the 32% referral rate reported by Engel et al.³⁵ Given the relatively consistent rate of referrals under the CDM scheme the work by both Orrock et al.³⁷ and Engel et al.³⁵ it could be surmised that the CDM scheme accounts for the majority of referrals of older adults to osteopaths. Whether these referrals were generated by patient requests to see an osteopath under this scheme or initiated by a general practitioner also requires investigation.

Osteopaths who report often treating older adults were more likely to refer to an exercise physiologist, counsellor/psychologist and nutritionist. Evidence for the management of a wide range of musculoskeletal complaints advocates the combined use of manual therapy and exercise, and maintaining physical activity to minimise the impact of musculoskeletal complaints.³⁸ It appears that osteopaths who treat these patients recognise the importance of exercise rehabilitation/therapy, counselling and specific nutritional advice for this patient demographic and to a large extent appear to acknowledge that these disciplines and treatments are beyond their own scope of practice. Referrals to osteopaths from podiatrists, exercise physiologists, massage therapists and naturopaths were also reported as occurring often. The bi-directional referral between osteopaths and allied and complementary medicine practitioners in the older population reported here supports an authentic, collaborative and patient-centred approach to the management of older patients in Australian healthcare.³⁹

With respect to specific conditions, shoulder, degenerative spine conditions and tendinopathies were significantly and positively associated with osteopaths who often treated older patients. Peripheral joint techniques were also likely to be used in this cohort given the increased incidence of peripheral joint complaints (i.e. hip/knee osteoarthritis, tendinopathies) typical amongst older populations.²⁶ The observed increase in the use of functional techniques by osteopaths may be due to a perception among these practitioners that these techniques constitute a safe and/or gentle treatment approach for older adults, however there is no data available to support either assertion. The safety profile of osteopathic care for older patients remains unexplored, however mild adverse events (e.g. muscle soreness) are commonly experienced,^{40–42} making this a likely side-effect in the older population. Given the high prevalence of osteopathic management of older adults, developing a patient safety profile for the profession in the management of older patients may also be advantageous.⁴³

Beyond the application of manual therapy, osteopaths who reported treating older patients more frequently than not, used basic nutritional advice and pain education to their older patients. Pain education is an emerging area of interest for osteopathy with work emerging in the pre- and post-professional space.^{44–46} What pain education osteopaths are using and how they may be applying such education in their patient management cannot be gleaned from the current data and this provides an avenue for further work. However, there is some evidence to suggest that the inclusion of pain education as part of osteopathy care can assist with reducing psychosocial influences in persistent pain.^{47,48} Pain education has also been advocated in combination with manual therapy

for the management of chronic pain in osteoarthritis.⁴⁹ The osteopaths in our study were also more likely to recommend medications as part of their patient management. Australian osteopaths do not have prescription rights, however it is within their scope of practice to recommend patient use of over-the-counter medicines (i.e. paracetamol, non-steroidal anti-inflammatory medicines) or complementary medicines such as glucosamine or fish oil to assist with pain management. The actual prescribing patterns of osteopaths, both in their patient management of the general population and in older adults, requires closer examination.

Osteopaths who reported often treating older adults referred more frequently for diagnostic imaging. Diagnostic imaging for older patients is equivocal: for example, no association has been established between 1-year outcomes and early imaging of the lumbar or thoracic spine.⁵⁰ Moreover, most imaging guidelines for acute or chronic back pain focus on younger age groups.⁵¹ However, it is not clear whether osteopaths are ordering imaging in accordance with clinical guidelines, or that the clinical presentation warrants imaging.⁵² It may also be that osteopaths are concerned that older patients are more likely to present with pathologies, and are consequently ordering imaging to identify if these pathologies are present. How imaging is utilised in Australian osteopathy practice, not just in the context of the management of older patients, is an avenue for further research.

The major limitation of the current work is its reliance on practitioners' self-report which is open to recall bias. Furthermore, the nature of this study as a secondary analysis of existing data limits the conclusions that can be drawn and as such the findings should be seen as hypothesis-generating rather than providing definitive answers. A number of future areas of enquiry have been identified that would be valuable for researchers to explore and align with previous calls for further research including: treatment approaches (both in terms of manual and non-manual prescriptions) of osteopaths providing care to older patients; treatment outcomes in older populations⁴³; the economic impacts of osteopathic care for older people⁵³; and exploration of older patient expectations and satisfaction with osteopathy care.^{54,55}

5. Conclusion

A substantial proportion of Australian osteopaths appear to frequently treat older adults and the patient management of this large and fast growing sub-population provides significant opportunity for the profession. Further empirical work is required to ascertain health outcomes of osteopathy for treating older patients and to explore and ultimately improve the role of osteopaths in interprofessional teams providing healthcare for older adults.

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Declaration of conflicting interests

The authors have no conflict of interests to declare.

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