

Evidence of increasing demand for musculoskeletal health services in older Australians: a report on Medicare consultation data and the implications for health profession education.

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Abstract

Background

The proportion of people over 65 years of age in Australia is changing at a faster rate than other age groups. As people live longer, the prevalence of chronic disease increases with a corresponding rise in the burden of disease. Musculoskeletal conditions are highly prevalent in the older age groups, and people with these conditions have greater limitations in daily activities and psychological distress than the general population and are found to require focused multidisciplinary care. In 2005, the chronic disease management (CDM) system was introduced by the Australian Government that enabled general practitioners to plan and coordinate multi-disciplinary health care including referrals to physiotherapy, chiropractic and osteopathy. Our aim was to report on recent trends in Australian CDM referrals to these professions and to reflect on the implications this may have on educational curricula in both the pre- and post- professional arenas.

Methods

Data regarding consultation claims were extracted from the Australian Government's *Medicare* website.

Results

There was an overall increase in the number of CDM referrals for people 65 years and older between 2009 and 2018. These increases were more than double the rate of population growth for the same age group during this period.

Conclusions

There is currently a lack of professional leadership in ensuring the essential skills and competencies for treating this age group are present in the workforce, with the burden falling on educators to bridge some of the gap. In order to increase proficiency, we recommend the inclusion of a number of content areas in any review of pre- and post-professional curricula related to aged care management of MSK conditions by these professions. These content areas include: changes in structure and function of the musculoskeletal system, how these changes alter the assessment and management of older patients, specific issues regarding manual therapy and exercise interventions, pharmacology and end of life care.

Background

The proportion of people over 65 years of age in Australia is changing at a faster rate than other age groups. In 1977, 9% of the population was aged 65 years and over. By 2017, the proportion had risen to 15% with projections it will reach 22% by 2057 [1–3]. As people live longer, the prevalence of chronic

disease increases with a corresponding rise in the burden of disease. This change will have a profound impact on the demand for health services in the future.

In 2011, cardiovascular disease and cancer were the leading contributors to the burden of disease for older Australians contributing 24% of the total disability adjusted life years (DALYs) followed by neurological (11%), musculoskeletal (9%) and respiratory conditions (9%) [4]. These figures include a component for lost productivity, measured in productive life years (PLYs), which has risen by 32% over the past 20 years for Australians 45–64 years of age. The leading chronic conditions associated with premature exit from the labour force are back problems, arthritis and mental and behavioural problems with the most rapid growth projected to occur in men aged 55–59 years and women aged 60–64 years [5]. The national impact of this lost labour force participation on gross domestic product was estimated to have been \$38 billion in 2010, increasing to \$64 billion by 2030 [5].

Musculoskeletal conditions are highly prevalent in the older age groups, with 29% of Australians aged 65–79 reporting the presence of osteoarthritis, 13% osteoporosis, 13% back pain/problems and 6% rheumatoid arthritis. People with these conditions have greater limitations in daily activities and psychological distress than the general population and are found to require focused multidisciplinary care [6].

The Australian government introduced a universal public health insurance scheme called *Medicare* in 1984. The scheme provided access to medical and hospital services for all Australian residents. In 2005, the government added the chronic disease management (CDM) system that enabled general practitioners (GPs) to plan and coordinate multi-disciplinary, team-based health care for patients with chronic conditions [7]. By 2016-17, there were just under 38 million *Medicare* claims for GP attendances for people aged 65 and over. This represented 29% of the total claims for GP attendances with twice as many claims per person for those aged 65 and over than for those aged under 65. [8] In addition, back and spine pain were the 5th most common diagnoses for people in this age group presenting to hospital emergency departments during the same period [8].

The prevalence of chronic musculoskeletal (MSK) conditions together with the increasing costs associated with hospitalisations for these conditions has seen a sharp rise in the demand for allied health services in Australia with a 43% increase in services compared to an 18% increase for GP services over the past 10 years [9]. Due to the complex nature of disease in the elderly, managing the health of older people requires a broader more holistic approach with greater emphasis on an individual's psychological, social, functional and physiological capacities. With respect to MSK conditions, this increase has contributed to a rise in the use of private allied health services such as physiotherapy, chiropractic and osteopathy [10]. These professions share a common focus on improving MSK function and increasing activities of daily living (ADLs) which is particularly pertinent for older people where maintaining mobility and the ability to exercise has been shown to benefit health by preventing falls, fractures [11] and cognitive decline [12].

The CDM system in Australia recognises the potential of physiotherapy, chiropractic and osteopathy to assist as part of a multi-disciplinary team-based approach in the management of chronic disease [7]. With the number of older Australians increasing and the proportion suffering back and spine pain high, there is a growing likelihood they will receive allied health interventions as a way of managing their chronic MSK condition. Our aim is to report on recent trends in Australian CDM referrals that relate to physiotherapy, chiropractic and osteopathy and to reflect on the implications this may have on educational curricula in both the pre- and post- professional arenas.

Methods

Data were extracted from the Australian Government's *Medicare* website that holds all consultation claims based on service item numbers under the CDM scheme [13]. The analysis was of item numbers 10960 (physiotherapy), 10964 (chiropractic) and 10966 (osteopathy) billed within each calendar year from 2009 to 2018. Data combined the number of consultations for three age groups: 65–74, 75–84 and 84+, hereafter referred to under the general heading 'older people'. Data were analysed descriptively using Microsoft Excel.

Results

There was an overall increase in the number of CDM referrals for people 65 years and older across all three professions as well as increases for each profession individually between 2009 and 2018 (see Fig. 1).

The overall increase in the number of consultations was 3.6-fold during the 10-year period with chiropractic increasing 4.4 times, osteopathy 4.0 times and physiotherapy 3.4 times.

Discussion

We report a substantial increase in CDM referrals to physiotherapists, chiropractors, and osteopaths for Australians over 65 years of age between 2009 and 2018. These increases were more than double the rate of population growth for the same age group during this period (population growth: 1.38 times between June 2009 and June 2018) [14].

While CDM data is not condition specific, it is reasonable to assume that a significant proportion of these referrals were for management of chronic MSK conditions, given the large increase in back problems and arthritis as causes for exiting the workforce for both men and women over 55 years of age during this period [5, 6]. The increase in demand therefore falls disproportionately on professions who deal with managing MSK conditions. Our data reflect this trend for physiotherapy, chiropractic and osteopathy with the trend likely to continue. The increase in interdisciplinary management between GPs and allied health professionals reflected in this data suggests a need for each of the professions to be educated about their respective roles and approaches to the management of the older patient.

Accompanying this trend has been an increasing number of calls for a review of the education of health workers involved in aged care. This has been in response to attempts to meet the demands of this population group [15–19]. These calls are supported by findings from two Australian government inquiries. The first, a review into the future of the aged care sector workforce, identified skill shortages that could be best addressed through better use of allied health professionals and the establishment of nationally consistent minimum standards for training and accreditation (recommendations 7 & 15) [15]. The second, the ‘Royal Commission into Aged Care’, recommended reforms in training and professional development frameworks for all aged care occupational groups including undergraduate and postgraduate courses for allied health professionals “*to broaden their knowledge and capability to support those in aged care*” (p227 – interim report) [17]. These two inquiries clearly outline the need to improve the capabilities of allied health graduates and practitioners in the area of aged care. The question then arises: what additional skills and capabilities are needed to achieve this?

In Australia, physiotherapy, chiropractic and osteopathy are nationally registered professions with established capabilities and competencies for practice. Interestingly, there are no specific capabilities relating to care of the older patient or within aged care facilities across the three professions [20–22]. Capabilities documents indirectly refer to the care of older patients under the category of managing people “across the life span”. However, there are no governing or educational bodies that specialise in aged care or gerontology for allied health in Australia, although Allied Health Australia, the peak national body for allied health professions, does have a web page that provides links to allied health services for older people (<https://ahpa.com.au/key-areas/aged-care/>). The Australian Association of Gerontology, which includes allied health professionals among its members, also publishes links to ongoing education in the field (<https://www.aag.asn.au/>).

Other professions have begun to address the issue by creating best practice and/or competency documents related to aged care. Chiropractic researchers published a consensus document for older adults, which focuses on issues such as cognition when obtaining a clinical history and informed consent, managing multi-morbidities, red flags, assessment strategies, care with manual techniques in the frail patient and specific social and psychological factors [23]. They concluded that there was a need for further development of both undergraduate and postgraduate training specific to the management of older adults.

Osteopathic educators in the US, where practitioners are registered full-scope medical practitioners, produced a set of competencies for training osteopaths in geriatrics that were specific to osteopathic manipulative medicine and in addition to the standard medical competencies [24]. These included a focus on gait and posture, contraindications and limitations for manipulative techniques in the older adult, and treating somatic dysfunction to improve activities of daily living.

The British Geriatrics Society published a ‘Comprehensive Geriatric Assessment Toolkit’ for all primary care practitioners [25]. It included issues such as mobility and balance, bone health, falls, depression, confusion/delirium, mental capacity, urinary incontinence, weight loss, nutrition and end of life care.

While not all of these are directly relevant to practitioners who focus on treating MSK conditions, they do provide guidance to educators when designing curricula.

In Europe, medical educators produced a consensus document of core competencies for treating the older patient that was designed for use in undergraduate medical training [26]. These competencies included respect and specialised communication, knowledge of common diseases of the elderly, advanced pharmacological knowledge, ethical and legal issues of end of life care, inter-professional respect and understanding, social care and the ability to care for the individual in diverse settings

The data we have reported demonstrate increasing interdisciplinary relationships between GPs and the three professions. Furthermore, best practice in aged care is reported as requiring these inter-professional partnerships. The American Geriatrics Advisory Group emphasised that this was due to the complexity of care required, and that the burden of cost can be alleviated using this approach to healthcare [27]. Goldberg et al [28] investigated inter-professional core competencies and agreed that, due to the complex nature of conditions and the multi-morbidities inherent in older patients, best practice in aged care required inter-professional partnerships.

While there are currently no evidence-based clinical guidelines addressing the use of manual therapy interventions for MSK conditions in the elderly, there are guidelines covering other conditions common in the elderly that may overlap this field. These include guidelines on osteoporosis and falls prevention [29]. The absence of guidelines relating to manual therapy highlights the challenge facing physiotherapy, chiropractic and osteopathic educators on how to integrate best practice recommendations into pre- and post-professional curricula.

While there are no aged care specialty pathways for allied health professionals in Australia, such pathways exist in the US where the physical therapy (PT) profession has established a specialty college in gerontology, with key competencies for practice in both the pre- and post-professional arenas [30]. These documents include six domains of practice and competency in the care of aged individuals that could provide a framework for curriculum developers in Australia. They are:

1. Health promotion and safety: Identifies the advocacy role that PTs may play, and points to clinical issues such as risk of falls, polypharmacy abuse, and the use of physical and chemical restraints;
2. Evaluation and assessment: Outlines the importance of comprehensive interdisciplinary assessment based on a bio-psychosocial model, the use of geriatric specific tools such as the Geriatric Depression Scale, and inclusion of advanced communication strategies in the assessment of cognition and sensory deficits;
3. Care Planning and Coordination: Deals with ensuring person-centred evidence-based care including advanced care (end-of-life) planning and the need for continuity of care between locations;
4. Interdisciplinary and team care: Focuses on the importance of communication between members of the team and the social relationships of the person at the centre of care;

5. Care-giver support: Assesses the needs of care-givers, advocate on their behalf, and provide access to resources and services; and
6. Healthcare systems and benefits: Be cognisant of and communicate the support mechanisms available to the aged person and their caregivers in the healthcare system.

Despite a degree of variability between the professions, it is clear there are a number of areas common to all three disciplines that require improvements in knowledge and skill. Suggestions for these are summarised in box below.

Aged care curriculum content

Basic Sciences: How normal anatomy and physiology alters with age, including changes in metabolic processes that affect bone, connective tissue and muscle

Clinical Sciences: How the effects of age change posture and gait, joint biomechanics, connective tissue and muscle flexibility, and strength (sarcopenia)

Diagnosis and Management: Practising under a biopsychosocial model, aged care specific tools of assessments (e.g. geriatric depression scale), multiple comorbidities, enhanced pharmacology including drug interactions and polypharmacy, small increments of change in ADLs, and end of life care (advanced care directives)

Exercise/rehabilitation: Adaptation of exercise for the aged body, slower and more graduated plans, and cognitive issues with compliance

Manual Therapy: Fragility of tissues, decrease in elasticity of contractile and connective tissue, dehydration of cartilage (e.g. inter-vertebral discs), contraindications for specific techniques, and ancillary modalities

Clinical Practicum: Exposure to and supervision while treating older patients in aged care facilities, in home-based care and in private clinics, communication skill enhancement including issues of consent, dementia patient management, end of life care and advanced care directives.

In order to increase proficiency in the three professions, we recommend the inclusion of all of the above in any review of pre- and post-professional curricula that is related to aged care management of MSK conditions.

Conclusion

With the increase in demand in Australia for practitioners proficient in managing older people with chronic musculoskeletal conditions, there is currently a lack of professional leadership in ensuring the essential skills and competencies are present in the workforce, with the burden falling on educators to bridge some of the gap. Many of the aspects mentioned in this paper are taught at some level in the

crowded pre-professional curricula, but more depth needs to be included. This will require a comprehensive review of the material relating to care of the older person with an update of all pre- and post-professional curricula necessary in order to better prepare allied health professionals in the management of older people with chronic musculoskeletal conditions. In highlighting the growth in demand for services, we argue there is a clear need to improve the capacity of allied health professions who manage these conditions otherwise demand will continue to remain unmet for the foreseeable future.

List Of Abbreviations

CDM chronic disease management

DALYs disability adjusted life years

GP general practitioner

MSK musculoskeletal

PLYs productive life years

Declarations

Ethical Approval and Consent to participate

Not required, data is publicly available

Consent for publication

Not applicable

Availability of data and materials

All data is publicly available

Competing interests

None

Authors contributions

PJO Collated and analysed the data and contributed to writing and editing the final manuscript

RME contributed to writing and editing the final manuscript

BV contributed to writing and editing the final manuscript

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Figures

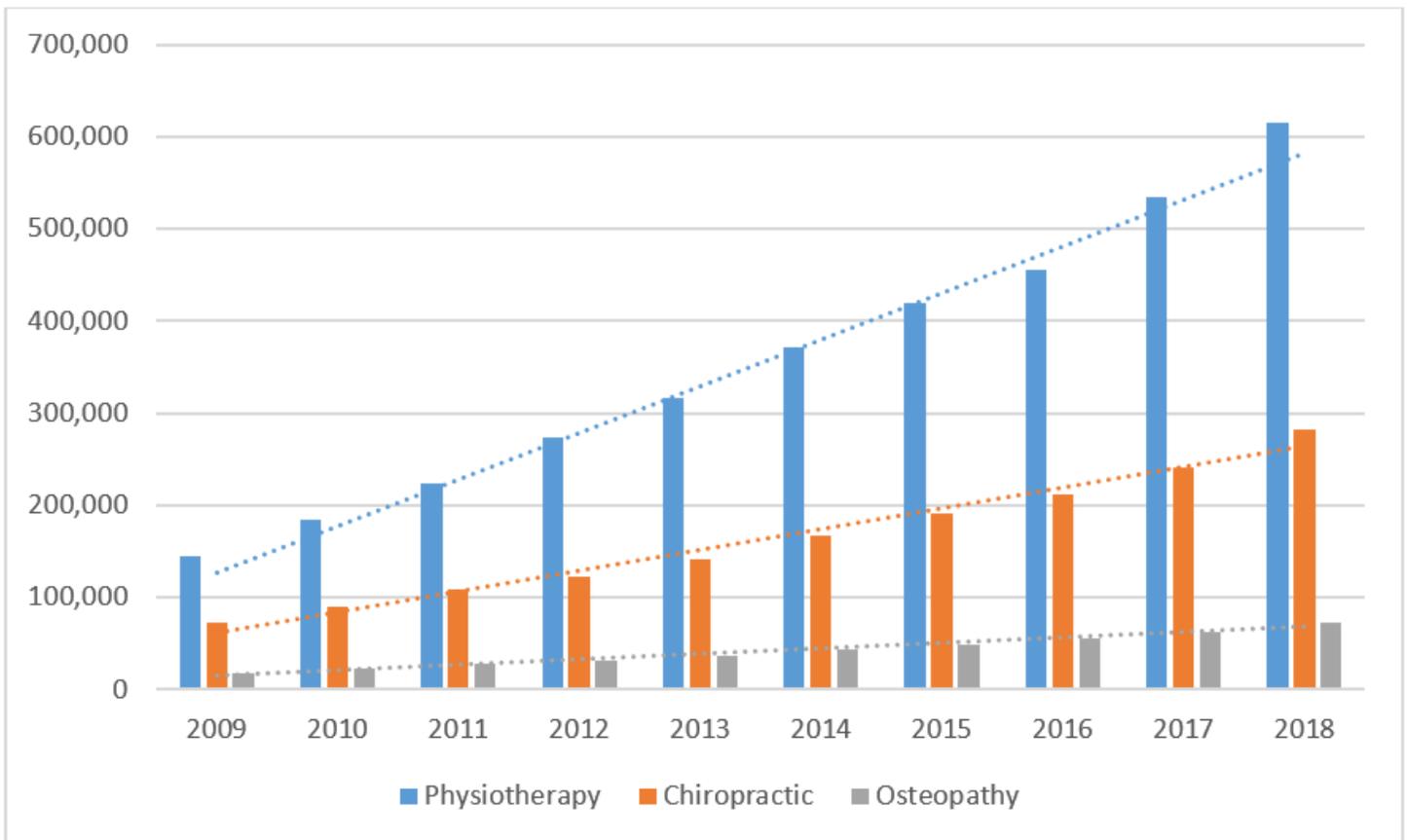


Figure 1

CDM consultations with people aged 65+ [13]