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Narrative review

Myotherapy student clinical placements: A review beyond the teaching clinic

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ABSTRACT

Background: Student clinical placements can offer an enriching learning experience, better preparing "work ready" graduates; however, it is unknown whether the type of clinical placement undertaken impacts the learning experience. Myotherapy degrees differ in their clinical practicum units, dependant on the undergraduate program they have enrolled in to. External clinical placements are common in allied health professional qualifications, offering industry experience and professional development.
Objective: The purpose of this literature review is to examine allied health placement models, identify dominant theories, best practice, advantages and disadvantages of external clinical placements. This paper discusses current clinical placements offered within the myotherapy undergraduate degrees, as well as exploring other allied health professions.
Implications for future research: The review of other allied health professions may act as potential exemplars to develop an understanding of best practice around student clinical placements and how this can translate into improvements of existing myotherapy teaching programs. This summary may be useful to warrant further research into the development of myotherapy clinical education.

1. Introduction

A significant component of allied health curricula is the development of skills that will equip an allied health graduate to become "work ready" by the time they graduate, in addition to the application and integration of evidence-based theoretical knowledge (Fairbrother et al., 2016). Clinical education, also known as clinical placements, has been described as the provision of practice placements for students (Rodger et al., 2008). Additionally, professional socialisation is a component of clinical placements (Siggins Miller Consultants, 2012). Many allied health professions have different practice models, dependant on accrediting bodies, national standards and registration boards (Rodger et al., 2008). Allied health students can complete external clinical placements in public, private and rehabilitation hospitals, aged care facilities, community health centres or student-led teaching clinics, supervised by clinical educators. Myotherapy degrees differ in their clinical practicum units, dependent on the undergraduate program they have enrolled in, with a combination of external clinical placements and student-led teaching clinics. This paper aims to critically review current allied health clinical placements to develop an understanding of theories and placement models used, best practice within student clinical placements and how this can translate into further discourse and research into clinical education within myotherapy teaching programs.

2. Structure and content of the review

The literature review examines external clinical placement models, theories, best practice, and barriers within allied health student clinical placements. Relevant articles were searched using the following databases: *PubMed, CINAHL, SCOPUS and Google Scholar.* Title and abstract searches were applied using the following search terms: "myotherapy"; "osteopathy"; "physiotherapy"; "exercise physiology"; "occupational therapy"; "chiropractic"; applying Boolean terms, the following were combined: "clinical placement"; "clinical supervision"; "work experience"; "best practice"; "disadvantages"; "benefits". To further investigate the research enquiry, an analysis of allied health student clinical placements of six allied health professions was undertaken. Myotherapy, physiotherapy, osteopathy, exercise physiology, occupational therapy, and chiropractic were included. The analysis examined Victorian university placement types and required placement hours. The Australian Health Practitioner Regulation Agency website was used to identify approved programs of study for Victoria. Moreover, university websites and individual

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professional association documentation were accessed for further information.

The key research enquiries that underpin this review are as follows:

1) Are external clinical placements more enriching to a student's clinical experience?
2) What is current best practice within allied health clinical placements?
3) What models and theories are dominant in allied health clinical placements?
4) What are the disadvantages of external clinical placements in private practice?

3. Background

Myotherapy is an allied health profession offered in higher education institutions in Australia as a three-year degree, Bachelor of Health Science in *Clinical Myotherapy* or *Myotherapy,* with the opportunity of obtaining an additional honours degree for high-achieving students (Endeavour College of Natural Health 2018). The definition of myotherapy is the assessment, treatment, and rehabilitation of musculoskeletal pain through evidence-based practice (Institute of Registered Myotherapists of Australia, 2013; Myotherapy Association Australia 2018a,b). The history of myotherapy began in 1989 at the Royal Melbourne Institute of Technology (RMIT), with a four-year advanced diploma (Myotherapy Association Australia). The first-degree level course commenced in the early 2000s at Southern School of Natural Therapies (SSNT), and subsequently, Endeavour College of Natural Health (*formally Australian College of Natural Medicine)* offered a degree in Musculoskeletal Therapy, later renamed Myotherapy. A myotherapy degree includes subjects relating to musculoskeletal conditions, pain management, sports injury management, musculoskeletal rehabilitation through manual therapy and exercise prescription, as well as the biological and social sciences. Myotherapy degrees also include a subject dedicated to research and evidence-based practice to introduce students to research methods and evidence-based practice within healthcare (Southern School of Natural Therapies, 2013). Myotherapy students learn standard methods of assessment including neurological, orthopaedic and functional testing, and clinical examination (Endeavour College of Natural Health 2018). Clinical practicum units commence in year 2 or 3, depending on the course undertaken.

4. Literature review

4.1. Clinical education

A successful clinical placement must provide a safe and supportive environment that exposes students to the reality of their chosen profession (Victorian Government, 2016). Essential elements that make up quality clinical placements identified by Siggins Miller Consultants (2012) include a proficient supervisory relationship, comprised of learning opportunities with direct patient contact, that aims to fulfil the students' learning outcomes successfully. Moreover, a collaboration between all placement parties through effective communication is necessary to better prepare students for clinical placements. “Quality in teaching and quality in patient care” is determined as best practice according to Siggins Miller Consultants (2012). Students and clinical supervisors have an integral role to play in the clinical learning environment. Many factors may influence the satisfaction of a student's clinical placement, both individual and environmental factors such as experience and prior knowledge, placement duration and pre-preparation, motivation and self-directed learning, as well as person-job fit (Levett-Jones and Lathlean, 2008; Siggins Miller Consultants, 2012). Difficulties may arise when a clinical environment is intended for clinical service as opposed to education, which in turn may impede clinical learning (Siggins Miller Consultants, 2012).

4.2. Clinical education in Victoria

The Victorian Government has developed a framework that consists of six key elements for best practice clinical learning environments aimed at supporting medicine, nursing and allied health disciplines. However, the framework does not replace competency standards set by regulatory, governing bodies or professional standards. The Australian Health Practitioner Regulatory Agency (AHPRA) is the regulatory body of 16 health professions. The Health Practitioner Regulation National Law governs operations under the legislation, National Regulations and Accreditation Scheme (The Australian Health Practitioner Regulatory Agency, 2018a,b). Each health profession has a national board that is responsible for regulating the profession, providing professional standards and policies. Graduate occupational therapists must meet Occupational Therapy Australia Competency-Based Standards to obtain accreditation and registration from the Occupational Therapy Board (Occupational Therapy Australia, 2010). Likewise, the Australian Physiotherapy Council (APC) governs and accredits all physiotherapy education programs in Australia, ensuring programs adhere to the Australian Qualification Framework (AQF). Additionally, the APC maintains and reviews the accreditation standard, as well as providing recommendations and advice to the Physiotherapy Board of Australia. (Australian Physiotherapy Council, 2018). At present, exercise physiology and the myotherapy profession do not fall under AHPRA regulation. There are five professional associations myotherapists can choose to register under, with only one dedicated solely to myotherapists (Myotherapy Association Australia). Exercise Sports Science Australia is the only governing body for all exercise physiologists (Exercise Sports Science Australia, 2018). The two available myotherapy undergraduate degree programs fall under the Tertiary Education Quality Standards Agency; with no overall professional regulatory standard, the degrees differ in their clinical practicum units. The minimum standard for clinical practice for an advanced diploma myotherapist to gain accreditation with private health fund insurers is 200 h of clinical practice with 80% comprising of clinical application of musculoskeletal assessment and treatment, and 20% non-clinical duties, such as observation or reception duties (Australian Traditional Medicine Society, 2017).

4.3. Theory and practice of clinical education

4.3.1. Socio-cultural learning theory

As the name indicates, socio-cultural learning theory is fundamentally a social process, with ancestral roots from historical and cultural dimensions (Yardley et al., 2012). Within the clinical environment, Vygotsky (1978) socio-cultural theory may provide valuable insight into the convoluted relationship between the more knowledgeable other (supervisor) and learner (student) (Spouse, 2001). The social interaction that occurs between the supervisor and student within the clinical environment is an invaluable component of the learning process and development of language in the clinical setting (Spouse, 2001). Vygotsky (1978) emphasises that individuals are persistently influenced by their surrounding environment, that the relationship between man and nature are continuously affecting one another: the social and cultural context

is not discrete from the individual (Frambach et al., 2014). Clinical education can relate to the two-stage learning process known as the zone of proximal development (ZPD). The ZPD is the bridge between the baseline knowledge and the outer limit of knowledge, knowledge-in-waiting, as described by Spouse (2001). A student may possess the baseline knowledge but cannot cross through to the outer limit knowledge and apply it, due to technical or cognitive fundaments. To move through the ZPD, a learner needs guidance from a more experienced other, such as a supervisor or mentor to transfer their knowledge into an understanding of practice (Spouse, 2001). Activity theory as described by contemporary scholar Engeström, builds on socio-cultural theory (Bennett et al., 2015). Development and learning are in the form of activities, often multiple activities co-occurring in the same milieu (Bennett et al., 2015; Frambach et al., 2014). The complexity of development and learning may be deconstructed and understood by merely analysing the activities undertaken; as seen in problem-based learning in medical education (Frambach et al., 2014).

4.3.2. Community of practice

Community of practice (CoP) signifies a social learning system, a practice of collective learning in a mutual environment (Wenger, 2010a,b). CoP and a sense of belonging is a fundamental dynamic identified for a successful clinical placement (Levett-Jones and Lathlean, 2008). An integral component of a CoP is relationship building, to initiate reciprocal learning. Shared practice is the term described for this shared learning phenomenon; a repertoire of shared resources that benefit the entirety of the group through stories, experiences, and problem-solving techniques (Wenger, 2010a). CoP is especially predominant among healthcare practitioners for peer-to-peer learning and professional development (Wenger, 2010a,b).

4.3.3. Experiential learning

Student clinical placements intend to integrate and transform theoretical knowledge into practice; this draws on a learning theory known as experiential learning or situated learning (Yardley et al., 2012). The constructed knowledge from real-life experience is experiential learning at its core. Experiential learning is an individualistic approach to learning based on how the individual's ability to learn different things and approach new tasks is continuously changing, based on previous experiences, as well as the accumulative experience of the individual in an ever-evolving learning continuum (Yardley et al., 2012).

4.4. Clinical placement models

There are numerous clinical placement models among allied health professions, with some programs favouring short-term rotations, longitudinal integrated clerkship (LIC), and modified cognitive apprenticeship models (CAM) (Vaughan et al., 2014). Education models can be a 1:1, 2:1, 2:1 or 2:2 arrangement, depending on the ratio of students to educators (Lekkas et al., 2007). A traditional 1:1 or one-educator-to-one-student model is also recognised as an apprenticeship or mentorship model (Lekkas et al., 2007). Lekkas et al. (2007) found that there was no gold standard for clinical education in physiotherapy programs. More recently, there has been an acceptance of simulation-based education and simulated learning environments as an evidence-based education model to be utilised in student clinical placements (Australian Health Ministers' Advisory Council, 2017).

4.4.1. Cognitive apprenticeship model (CAM)

The CAM approach fosters peripheral participation in an authentic learning environment, where students enter on the periphery while gradually moving into full participation as the relevant skills develop (Dennen and Burner, 2008). The cognitive apprenticeship model has been integrated into various teaching programs to connect theoretical knowledge to real-world clinical practice, ultimately, "learning to become a practitioner" (Dennen and Burner, 2008). Page and Ross (2004) define a hierarchy of learning and teaching strategies grouped into six categories: modelling, coaching, scaffolding, articulation, reflection, and exploration. The first three categories are elements from traditional apprenticeship models, and the latter three are principles of CAM. Each strategy may involve:

- modelling: a demonstration from the clinical educator;
- coaching: verbal assistance from the clinical educator during student tasks;
- scaffolding: support from the clinical educator before and throughout tasks;
- articulation: the vocalisation of a student's thought process or clinical reasoning;
- reflection: comparison of a student's current practice with previous experiences;
- exploration: task appropriate independent practice by the student

(Cole and Wessel, 2008; Page and Ross, 2004; Vaughan et al., 2014).

4.4.2. Simulation-based education and training

Simulation-based education training (SBET) and simulated learning environments (SLEs) introduce students to interprofessional scenarios, to improve knowledge while developing confidence and hands-on skills in a supportive environment that is carefully controlled and monitored (Australian Health Ministers' Advisory Council, 2017). Simulation-based education may alleviate the burden of providing students with extensive clinical placement hours, while improving opportunity for clinical learning. The occupational therapy accreditation standards state that students may incorporate up to 20% of well-designed simulated learning experiences as a component of student clinical placements.

4.5. Problems within current allied health clinical placement models

Several allied health degrees such as physiotherapy, require students to complete placements in specific areas to gain clinical competency to graduate. Shortage of placements within any particular area, such as cardiorespiratory, neurologic, or musculoskeletal, may hinder a student's ability to graduate (Rodger et al., 2008). Reduced staff due to cutbacks in health care funding has impeded support systems available to students completing clinical placement. Additionally, more substantial cohorts of students requiring placement, especially with the development of new programs, has further added to the demand for external student clinical placements. Rodger et al. (2008) described the excessive working hours spent by staff at a New South Wales university attempting to place 30 speech therapy students in adult neurological settings, with phone calls over four states and an estimated 300 h in doing so. Monetary barriers associated with clinical placements may limit diversity - travel costs, accommodation, and fees charged by healthcare services may limit clinical experiences that are available to students (Australian Health Ministers' Advisory Council, 2017). Moore and Field (2017) identified several barriers associated with osteopathy student clinical placements in private practice. Labour-intensive involvement with arranging placements;

curriculum development and timetabling-many subjects require mandatory attendance; availability of student vs practitioner; locating suitable practitioners willing to supervise students; supervisors may not be up-to-date in professional development; and limited clinical exposure-if time spent, is in one location.

4.5.1. Quality of clinical placements

A significant barrier identified in a report by Siggins Miller Consultants (2012) that impaired the quality of a clinical placement, was occupational stress. Occupational stress during clinical placements leads to compromised performance, anxiety accompanied by inhibition of learning, and overall reduction of health and well-being. The quality of clinical educators was a key discussion point from Rodger et al. (2008), with supervisory selection based on availability, rather than specific expertise. The skills of a clinical educator may not be substantial for a supervisory role, indicating the need for selection criteria. Australian Health Ministers' Advisory Council (2017) similarly discuss the necessity for a standardised system of quality control for clinical environments, including an accreditation process for placement sites to ensure safety, for not only patients but students - while creating consistency across disciplines and streamlining the accreditation process. However, difficulties may arise with the implementation of a stringent accreditation process or selection criteria that may further condensed availability of placements.

4.5.2. Liability and insurance barriers

When a student enrols into an allied health degree, an implied contractual arrangement commences with the university. It is the universities' duty of care to ensure a safe environment is provided at all times, extending to off-campus student placements (Dye and Bender, 2006). Liability insurance and duty of care issues have instigated the implementation of formal contracts and accreditation of placement sites to ensure student safety. Concurrently, university policies and procedures are obligatory for individual placements sites (Dye and Bender, 2006). The Victorian government has developed a student placement agreement template to formalise partnerships between public hospitals and education providers (Victorian Government, 2015).

5. Discussion

A vital component of this review was to examine six Victorian allied health courses and the clinical placement types offered and the required placement hours students are to complete. Physiotherapy and occupational therapy (OT) courses were required to complete the highest number of hours, with all undergraduate programs exceeding 1000 h of clinical placements (See Table 1.). The World Federation of Occupational Therapists have a mandated 1000 h of clinical practice in all OT courses. There was a combination of clinical placement models among the allied health courses, with some universities completing hours in a student-led clinic, fieldwork in a clinical setting, community centres and outreach programs, or private practice. Several universities require students to undertake placements in university-approved health organisations or with approved supervisors, whereas other universities oblige students to organise clinical placements at their discretion. The disadvantage of 'student organised' clinical placements is the lack of quality assurance in the clinical education the student receives, which was one of the significant barriers identified in clinical education quality (Siggins Miller Consultants, 2012).

Several universities incorporate simulated learning environments (SLEs) into clinical practicum, including a trial of Victoria University third-year osteopathy students (Fitzgerald et al., 2017). Second-year OT students at Australian Catholic University undertake one week of simulated professional practice in a vocational rehabilitation setting. Some degrees require a high number of clinical placement hours complete, while capacity is finite in clinical environments such as acute hospitals (Blackstock et al., 2013). SLEs may expand the opportunities for clinical learning while alleviating pressures of allocating students into specific clinical placements (Australian Health Ministers' Advisory Council, 2017). In 2014–2015 the Health Workforce Australia funded a project for the integration of SLEs into entry-level physiotherapy clinical education (Moss et al., 2015). The project developed a five-day role play simulation, with scenarios from areas of neurological, cardio-respiratory and musculoskeletal care. Three Victorian universities participated in the project, with the simulations embedded into the teaching programs. However, there is no information available to suggest this is still a component of the clinical curriculum. There is a dearth of information relating to specific theories and models implemented in Victorian universities. Osteopathy clinical education at Victoria University has been well documented with Vaughan et al. (2014) describing a modified cognitive apprenticeship model, elements of community of practice and situated learning within the program.

The University of Sydney recently trialled a new model of clinical education for physiotherapy student placements, the Capacity Development Facilitator (CFD) Model. The implementation of this model as an alternative was used to address various factors such as sustainability, increased workload demands and decreased productivity during student clinical placements (Fairbrother et al., 2016). The CDF was placed at participating Sydney hospital clinical placement sites to assist clinical educators and students by offering support, and educational support – through learning activities, journal club, workshops and in-services. Fairbrother et al. (2016) state the primary responsibility of the CDF is to increase productivity and capacity, ongoing sustainability, active staff engagement and placement opportunities.

Student-led clinics are the principal clinical placement setting in professions that predominantly work in private practice, such as osteopathy, chiropractic, and myotherapy. However, some of these courses offer an external clinical placement component, such as the clinical myotherapy program at SSNT. Appropriate quality control measures are one of the identified barriers relating to external clinical placements. Myotherapy students at SSNT are required to submit an application with the chosen external placement site; a board approves the site before commencing placement; additionally, minimum supervisory education requirements are in place.

6. Conclusion

This review provides an overview of clinical theories and models used within allied health clinical placements - in addition to barriers, disadvantages and advantages. The dominant theories described in clinical education were communities of practice, sociocultural theory and experiential learning. There is no gold standard model of clinical education, but quality in teaching and the supervisory relationship is considered to be a significant component of best practice. The acceptance of simulated based education offers an alternative to some of the barriers such as placement scarcities, while still providing a quality learning experience. External clinical placements are the most frequently described; however, numerous obstacles exist. Much of the literature highlights the importance of an accreditation process and the evaluation of quality measures to ensure clinical educators are appropriate - with specific expertise and supervisory experience. There are numerous positive attributes associated with clinical placements in private practice, that in turn may enrich a students' clinical experience. The development of clinical reasoning skills with direct patient contact and the

Table 1
Overview of Victorian university allied health courses, clinical placement details and industry requirements.

Profession	University	Degree	Course Length	Clinical Practice hours	Clinical Placement type	Competency & Standard Requirement
Chiropractic	Royal Melbourne Institute of Technology (RMIT)	Bachelor of Health Science/ Bachelor of Applied Science (chiropractic)	5 years	not specified	Y4: RMIT teaching clinic Y5: External placement, outreach community placements	
Exercise Physiology	Deakin University	Bachelor of Exercise Science/ Master of Clinical Exercise Physiology	4.5 years	Y3: 140 Y4: 80 Y5: 140	Y3: Student organised external placement Y4: External clinical placement Y5: External clinical placement	ESSA requires 140 hours of clinical practice for Exercise Scientist & 360 for Exercise Physiologist
	Latrobe University	Bachelor of Exercise Science/ Master of Exercise Physiology	4 years	500	Y4: Approved health organisation clinical placement	
	Victoria University	Bachelor of Exercise Science/ Master of Clinical Exercise & Rehabilitation	4.5 years	not specified	Y3: Work placement Y4: External clinical placement	
Myotherapy	Endeavour College of Natural Health	Bachelor of Health Science (Myotherapy) (honours)	3 years 4 years (honours)	Y1: 39 Y2: 117 Y3: 195	Y1: Pre-clinical hours Y2: Student led clinic Y3: Student led clinic	
	Southern School of Natural Therapies (SSNT)	Bachelor of Health Science (Clinical Myotherapy)	3 years	Y1: 80 Y2: 100 Y3: 315	Y1: External placement Y2: External placement Y3: 120 hours external placement& 195 hours student led clinic, simulated based education	
Occupational Therapy	Australian Catholic University (ACU)	Bachelor of Occupational Therapy (honours)	4 years	1000	Y2: Fieldwork, community engagement, simulated professional practice Y3: External placement, neuroscience Y4: External placement, community rehabilitation	World Federation of Occupational Therapists (WFOT) requires 1000 hours of clinical practice
	Deakin University	Bachelor of Occupational Therapy (honours)	4 years	1000	Y1: Fieldwork placement in clinical setting Y2: Fieldwork placement in clinical setting Y3: Fieldwork placement in clinical setting Y4: Fieldwork placement in clinical setting	
	Latrobe University	Bachelor of Applied Science/ Master of Occupational Therapy Practice	4 years	1000	Y3: Approved health organisation clinical placement Y4: Approved health organisation clinical placement	
	Monash University	Bachelor of Occupational Therapy (honours)	4 years	1000	Y2: Fieldwork placement in clinical setting Y3: Fieldwork placement in clinical setting Y4: Fieldwork placement in clinical setting	
	Swinburne University		2 years	1000	Y1: Fieldwork placement in clinical setting	
		Masters of Occupation Therapy (Professional entry)			Y2: Fieldwork placement in clinical setting	
		Masters of Occupation Therapy (Professional entry)	2 years	1000	Y1: University organised private practice, hospital, community Y2: University organised private practice, hospital, community	
Osteopathy	Royal Melbourne Institute of Technology (RMIT)	Bachelor of Health Science/ Bachelor of Applied Science (Osteopathy)	5 years	not specified	Y3: Simulated clinical practice Y4 & 5: RMIT health science clinic	
	Victoria University	Bachelor of Science/ Master of Health Science (Osteopathy)	5 years	890	Y3: Student led clinic Y4: Student led clinic Y5: Student led clinic, external clinical placement	
Physiotherapy	Australian Catholic University (ACU)	Bachelor of Physiotherapy (honours)	4 years	not specified	Y1: External clinical placements Y2: External clinical placements Y3: External clinical placements Y4: External clinical placements	
	Latrobe University	Bachelor of Applied Science/ Master of Physiotherapy Practice	4 years	≥1000	Y3: Approved health organisation external clinical placement Y4: Approved health organisation external clinical placement	
	Melbourne University	Doctor of Physiotherapy (master's degree)	3 years	≥750	Y2: University approved external placements: musculoskeletal, cardiorespiratory, neuroscience	
	Monash University	Bachelor of Physiotherapy (honours)	4 years	≥1000	Y3: External clinical placements Y4: External clinical placements	

opportunity to engage in a mentorship relationship with the supervising practitioner add to the enriching clinical experience. Students gain valuable insight and experience into their chosen profession while undertaking clinical placements in private practice. It is recommended that further research is undertaken to examine myotherapy clinical education, specifically, to identify barriers and benefits of myotherapy student placements in private practice - from the perspective of students and clinical supervisors.

Conflicts of interest

Sarah Wood declares that she has no conflict of interest.

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