

Evaluation of the Early Impact of COVID-19 on Physiotherapy Clinical Placement Learning Models and Client Case-Mix

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Abstract

Clinical placements are fundamental to entry-level physiotherapy education and provide an opportunity for students to translate theory into practice within authentic clinical environments. Student success during clinical placement is a core requirement of physiotherapy programs and a critical component of the pathway to graduation, registration, and then employment. The registration of a physiotherapist confirms that as a student, they have met the profession's rigorous accreditation requirements. COVID-19 has significantly disrupted physiotherapy clinical placements across Australia, with many placements postponed or cancelled in the early public health response. These placement disruptions may preclude students from demonstrating mandatory pre-registration accreditation requirements, ultimately reducing the number of eligible new-graduate physiotherapists. Creating sustainable clinical placements whilst upholding the professional standard of entry level graduates during the pandemic, calls for innovative solutions to monitor student placement experiences. A Clinical Portfolio was implemented to improve monitoring processes and enable dynamic responses to potentially altered student learning experiences as COVID-19 public health measures evolved. In doing so, the aim of this study was to evaluate the impact of COVID-19 on physiotherapy student placements between May and June 2020 through examining client case-mix, demographics and learning model documented in each student's Clinical Portfolio. These data sets allowed for comparison of learning model and case-mix during the pandemic with previous literature monitoring typical physiotherapy clinical placement experience, and providing support for ensuring the registration of the cohort impacted.

Keywords: COVID-19; clinical placement; monitoring; physiotherapy; portfolio, service delivery

Introduction

Clinical education is an essential 'cap stone' of entry-level physiotherapy programs that equips students to transition from university to a registered health practitioner. Physiotherapy students must successfully complete their designated program of university study including clinical practice experiences to graduate (Australian Physiotherapy Council, 2017). In Physiotherapy these experiences occur in broad clinical

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settings, including hospital inpatient, outpatient and community settings, and are hereinafter referred to as 'clinical placements' (Health Workforce Australia, 2014).

Under the supervision of registered physiotherapists, structured clinical placements afford students the opportunity to apply their theoretical knowledge through the provision of management to clients (Physiotherapy Board of Australia & Physiotherapy Board of New Zealand, 2015). In addition to translating theory to practice, clinical placements enable the evaluation of a student's performance within an authentic clinical environment. To evaluate student competency, all Australian universities appraise a student's performance against the domains of a valid and reliable tool, the Assessment of Physiotherapy Practice (APP) (Dalton et al., 2011; Dalton et al., 2012). Thus, clinical placements and the supervising physiotherapist/s, play a critical 'gate keeping' role in students transitioning to being safe and effective new graduate physiotherapists and entering the workforce.

Demonstration of clinical competence is an essential component of health professional programs. Through completion of the required placement experiences, students are able to progress into subsequent academic courses or graduate (Twogood et al., 2020). In Australia, rather than completing a designated number of clinical hours, professional accreditation requirements necessitate that students demonstrate the ability to effectively manage clients across both the lifespan and breadth of a number of clinical areas (Australian Physiotherapy Council, 2017), with students undertaking multiple clinical placements across rehabilitation, musculoskeletal and acute settings.

The early response to the COVID-19 pandemic caused significant disruption to physiotherapy practice and clinical placements. Within Queensland, Australia, the COVID-19 impact was evident as early as February 2020, with the first COVID case diagnosed in late January (Queensland Government, 2021), and the implementation of social distancing and non-essential service shut down from late March. Disruptions included the upskilling and re-deployment of physiotherapy staff who supervise students, new infection control confines and a rapid increase in the use of telehealth in outpatients and private practice (Haines & Berney, 2020). Clinical placement programs have seen large placement cancellations and/or delay, and for placements that have been able to go ahead, changes to the working environment and intended clinical case-mix and delivery (MacDonald et al., 2020). Due to ongoing and rapidly changing health controls, the COVID-19 pandemic continues to pose a threat to the delivery of clinical placement programs and ultimately students' academic progression and graduation to the workforce.

Historically, placement characteristics including client demographics, expected client presentations, clinical setting and placement pre-requisites (previous placement experience) have been collected prior to placement (Queensland Physiotherapy Placement Collaborative, 2020). This demographic information is reviewed by university placement academics prior to accepting a placement, to ensure it meets each student's required program of study and professional accreditation requirements. This ability to plan placement experience based on historical data has been compromised by the COVID-19 public health response. Due to the cancellation of elective surgery and redistribution of outpatient staff to the inpatient setting, for many physiotherapy staff in Queensland, their 'usual duties' changed (Queensland Government, 2021). To minimise the cancellation of clinical placements and the subsequent impact on the future workforce, supervising physiotherapists were asked, where reasonable, to continue to offer clinical placements. Subsequently, the structure of the clinical placements was adapted, enabling students to learn with and from the 'new' practice, as determined by COVID-19. In comparison to historical clinical placement learning models, this modification in structure resulted from changes to the student's role in managing clients (responsible, peer-to-peer, observation, telehealth) and potential change of the clinical area of focus (musculoskeletal, acute, rehabilitation). This necessitated the need for concurrent evaluation of the placement learning model and placement case-mix managed by students during the pandemic.

In this context, a Clinical Portfolio provided a strategy to monitor student clinical placement experiences during the evolving pandemic response. The objective of a Clinical Portfolio was to use real time information to objectively support decisions regarding current and future placement allocation. Furthermore, the facilitating placement academic's ability to map student experience against accreditation standards demonstrated the program was meeting regulatory expectations. This was achieved through monitoring key clinical placement components of learning models, the number of therapeutic

interactions/occasions of service (OOS) and client case mix, and may assist in understanding a student's experience. The aim of this study was to evaluate learning models and case-mix experience of students participating in physiotherapy placements during the early pandemic COVID-19 response. These datasets were collected by implementing a Clinical Portfolio, and allowed the comparison of learning model and case-mix during the pandemic to a previous study that monitored typical physiotherapy clinical placement experience (Stoikov et al., 2018). These findings may potentially provide support for ensuring the registration of the physiotherapy cohort impacted by COVID-19.

Methods

Participants

To be eligible for inclusion, students were required to be enrolled within a physiotherapy program and allocated to a clinical placement between 11 May and 17 July 2020. Eighty-two final year (year 5) entry level masters (pre-registration) physiotherapy students from one university were identified as eligible due to being allocated to a five-week, full-time clinical placement between the stipulated dates. Eligible students were invited to be involved in the study through email advertisement and invitation, and were informed that whilst their participation was valued, inclusion in the study was voluntary. Students were assured that declining to participate in the research would have no bearing on their placement status or program progression. The researchers were not involved in the supervision or marking of the students whilst on clinical placement, and had no influence on results that the students received for this placement and the course attached to the clinical placement. Ethical approval and informed consent were obtained prior to commencement of the study. The study was approved by the Griffith University Human Research Ethics Committee, Gold Coast, Australia (Reference 2020/321).

Clinical Portfolio Format

The introduction of the Clinical Portfolio was in response to the COVID-19 pandemic, therefore, all students who consented to participate, required introduction to and familiarisation with the Clinical Portfolio format and requirements. Data related to clients that the students managed were collected from two consecutive five-week clinical placement blocks, providing ten weeks of data for both rehabilitation and acute clinical settings. Public, private and community clinical placements sites were included to capture the breadth of the student placement clinical activity. To ensure confidentiality, each participant had an individual password-protected Clinical Portfolio shared with the investigator via a Microsoft Excel Online worksheet. The portfolio was a live document that only the student and investigator could view, facilitating real time monitoring of portfolio completion and opportunity to provide feedback/assistance, if required. The Clinical Portfolio design was mapped against the Australian Physiotherapy Council (APC) Accreditation Standards (Australian Physiotherapy Council, 2017), and required students to enter de-identified information about the clinical setting, client age group range, and the primary reason for that person requiring physiotherapy.

Clinical Portfolio Procedure

The cohort of students completed clinical placement from Monday through to Friday, for five consecutive weeks. For the purpose of this study, each OOS involving the student captured ten consecutive workdays during Weeks 3 and 4 of the five-week clinical placement. An OOS was defined as an interaction between a therapist-physiotherapy student team and a client to deliver a health service (Rodger et al., 2011). Group classes were documented as a single OOS rather than one for each participant in the group class (Stoikov et al., 2018). The decision to use data from Weeks 3 and 4 was to curtail the impact of the Clinical Portfolio on students' workload, and to ensure stability of OOS. It has been previously demonstrated that irrespective of clinical area, an increase of OOS typically occurred in Weeks 1 to 3 of a physiotherapy clinical placement, plateauing in the later weeks (Stoikov et al., 2018). Furthermore, whilst the authors considered it crucial to monitor students' placement experience during the pandemic, they were cognisant of increasing student workload on top of potential stress and anxiety due to the impact of COVID-19 (Yang et al., 2020).

By marking the corresponding box, students were able to document whether the assessment was completed in an inpatient, outpatient, or community setting, and identify the body system the presenting condition primarily affected (cardiorespiratory, neurological, musculoskeletal or other). The client age domains were broad and reflective of the APC accreditation standards, paediatric (0-17 years), adult (18-65 years), or geriatric (65+years) and the mode of consult delivery was documented (face-to-face, via telehealth or a simulated learning activity). The learning model was also documented for each consultation through student autonomy. This was achieved by recording for each setting the clinical caseload whereby students were primarily ‘responsible’ for the physiotherapy assessment, worked in a ‘peer-to-peer’ model, completed ‘part’ of the assessment, or ‘observed’. See [Table 1](#) for an example Clinical Portfolio.

Table 1

Student Clinical Portfolio: with one completed consult example

Clinical Portfolio		XX/XX/2020	[Consultation Date]
Setting	Inpatient		
	Outpatient	x	
	Community		
Age of Client	0-5		
	6-18		
	18-65	x	
	65+		
Primary Area/System	Cardiorespiratory		
	Neurological		
	Musculoskeletal	x	
	Other body system		
Your role	Observing		
	Part of Assessment		
	Peer to Peer		
	Responsible	x	
Type of consultation	Face-to-Face	x	
	Telehealth		
	Simulation		
	Other		

Data Analysis

The live Clinical Portfolios were downloaded and de-identified after each five-week clinical placement block and incomplete data sets were removed before analysis. All statistical analyses were performed using SPSS version 27.0 (SPSS Inc., Chicago, IL, USA). For the two clinical settings (rehabilitation and acute), descriptive statistics, mean and standard deviation (SD) were used to describe average OOS per student per week, and per day for each clinical setting. The Wilcoxon Signed Rank Test was used to compare the average OOS between placement weeks, with the level of significance set *a priori* at $p < 0.05$. Percentages were calculated for client demographics and presenting condition. More specifically, the total number of patients seen was subcategorised by mode of delivery, and a percentage of total consultations calculated for face-to-face, telehealth or simulated learning activity (total number for each mode of delivery/total consultation number x100). This process was repeated for the body system primarily affected/reason for the appointment (cardiorespiratory, neurological, musculoskeletal or other), the client age bracket (paediatric, adult, or geriatric), and the role/autonomy of the student (responsible, peer-to-peer, part assessment, or observation).

Results

Completion of Clinical Portfolio

Data were collected for a combined total of 134 weeks of student clinical activity during the early COVID-19 pandemic response. Of the 82 eligible students invited to participate, 71 consented to participate, of which 69 completed Week 3 Clinical Portfolio data, and 65 completed the Week 4 Clinical Portfolio data. The included university utilises an embedded clinical placement model whereby students complete their five, five-week clinical placements across a two-year period with teaching interspersed between their experiences. All included students had previously successfully completed two five-week clinical placements in the previous year, in a musculoskeletal and orthopaedic clinical environment, and due to the structure of the program were currently allocated to either a rehabilitation or acute placement experience. [Table 2](#) outlines total student enrolment by placement clinical area and Clinical Portfolio completions presented by the clinical area and week of placement.

Table 2

Completion of Clinical Portfolio by clinical area and week

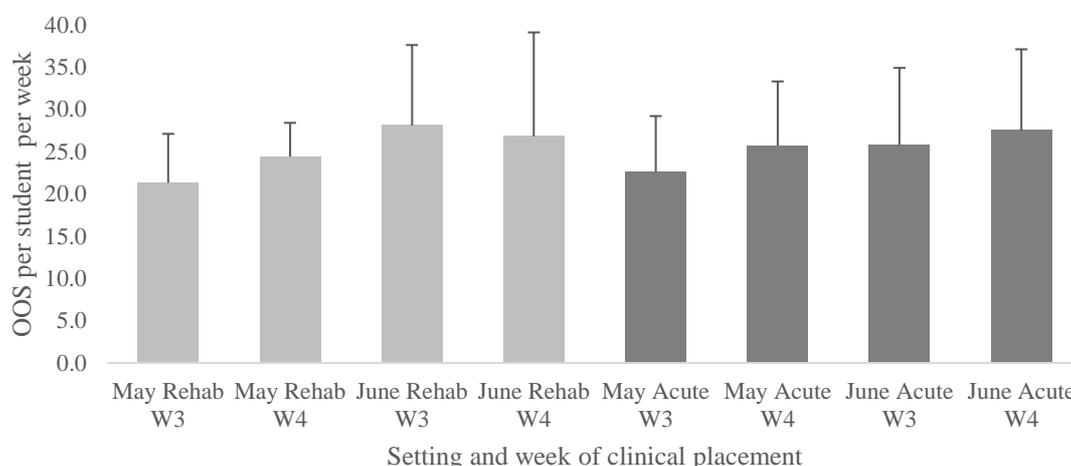
Placement allocation by clinical area	Total number of student placements	Week 3 Clinical Portfolio completion numbers	Week 4 Clinical Portfolio completion numbers
Rehabilitation (May start)	17	14 (82%)	14 (82%)
Rehabilitation (June start)	15	11 (73%)	6 (40%)
Acute (May start)	24	21 (87%)	23 (96%)
Acute (June start)	26	23 (88%)	22 (85%)

Occasions of service

The mean OOS for the rehabilitation setting ranged from 21.3-28.2 OOS per student per week and 22.6-27.4 OOS per student per week for an acute setting. There was positive trend observed for an increase in

Figure 1

Occasions of service per student per week by clinical area



OOS between Week 3 and Week 4 for the acute clinical setting for both clinical blocks (Block 4, May start and Block 5, June start). Statistical significance however was not reached ($p = 0.16$, $p = 0.59$). A similar, and statistically significant ($p = 0.02$), trend for an increased number of OOS between Week 3 and Week 4 was observed in the May block of the rehabilitative setting, however, there was a non-significant reduction in mean OOS per student per week observed in the subsequent clinical block (June block). See [Figure 1](#).

Demographics and case mix

In the rehabilitation setting, consultations occurred almost exclusively face-to-face (>94%) with the student taking responsibility in the majority of consultations (81.9-91.7%). The neurological system was the primary reason for the consultation (83.7-87.2%) with a musculoskeletal presentation as the second most common reason for consultation (7.2-13.4%). The clients were predominately over 65 years of age (94.5-96.5%) with no consultations of people aged 17 years and under completed.

In an acute setting, the consultations occurred almost exclusively face-to-face (>99%) with the student taking responsibility for >90% of all consultations. The cardiorespiratory system was the primary reason for consultation (69.6-74.2%) with a combination of neurological, musculoskeletal and other systems contributing to the remaining consultations. The clients were predominately over 65 years of age (83%), with clients aged 18-65 years the second most common (13.3-16.2%). See [Table 3](#) for case mix and demographics by clinical setting.

Table 3

Case mix and demographics of student clinical activities

	Rehabilitation		Acute	
	Block 4 (May start)	Block 5 (June start)	Block 4 (May start)	Block 5 (June start)
Client Age				
0-5	0.0%	2.4%	0.0%	1.5%
6-17	0.0%	13.6%	0.2%	2.2%
18-65	30.5%	28.5%	16.2%	13.3%
65+	94.5%	96.5%	83.6%	83.0%
Primary System				
Cardiorespiratory	4.1%	2.2%	69.6%	74.2%
Neurological	87.2%	83.7%	6.7%	10.0%
Musculoskeletal	7.2%	13.4%	9.5%	7.8%
Other	1.6%	0.7%	14.2%	8.1%
Role of Student				
Observing	3.0%	5.7%	4.2%	3.5%
Part of Assessment	3.4%	10.6%	3.0%	3.5%
Peer to Peer	1.9%	1.8%	1.0%	2.3%
Responsible	91.7%	81.9%	91.8%	90.6%
Type of Consult				
Face-to-Face	96.9%	94.7%	99.1%	99.7%
Telehealth	0.0%	4.9%	0.0%	0.1%
Simulation	0.0%	0.4%	0.0%	0.0%
Other	3.1%	0.0%	0.9%	0.2%

Discussion

Despite the initial changes that occurred for physiotherapists and universities during the early COVID-19 pandemic response, students have continued to demonstrate clinical capabilities within fluid clinical settings. The support of our industry partners has ensured the academic progression and punctual graduation of the students involved in this study.

COVID-19 and Clinical Placements

A briefing paper from the World Confederation for Physical Therapy that surveyed physiotherapy students from over 400 higher education institutes, highlights the immediate consequences of COVID-19 on physiotherapy entry level education programs across the world (Almeida, Bury, Caro et al., 2020). Whilst a quarter of the included students did not have an allocated placement at the time of the survey, for the remaining students, only 7% were able to continue their clinical placement program without significant change to the placement format (Almeida, Bury, Caro et al., 2020). In Queensland, Australia, non-essential service shut down and implementation of social distancing measures in response to COVID-19, saw an initial reflexive cancelling of clinical placements. This varied from indiscriminate cancellation across an entire health service to targeted cancellation in only some areas, for example acute medical, orthopaedic and community aged care settings. For the university included in this study, all orthopaedic placements that were scheduled for March and early April were initially cancelled.

At a public health level, in early April 2020, a memorandum for the state of Queensland was released detailing the essential role of student clinical placements during the response to COVID-19 (Queensland Government, 2020). In addition, where safe to do so, the need to ensure clinical placement continuation was outlined, citing that ongoing disruption of clinical placements may reduce the number of new-graduate physiotherapists entering the workforce. Due to high median physiotherapist age, Australia has a declining physiotherapy workforce (Pretorius et al., 2016; Schofield & Fletcher, 2007). This workforce profile, coupled with the need for physiotherapists to manage both the short- and long-term impairments from COVID-19, further highlighted the need for a secure line of capable health professionals.

Client care and OOS

A quality clinical placement is one that provides the student with opportunities to apply theoretical and practical learning (Siggins Miller Consultants, 2012). Despite an anticipated reduction in student involvement in patient care activity, the mean OOS numbers per student per week in the current study (rehabilitative 21.3-28.2 OOS; acute 22.6-27.4 OOS) in fact exceeded those found in a previous study, whereby the average OOS per week for Week 3 and Week 4 of clinical placements was 14.5 and 18.8 OOS in a rehabilitative setting and 21.8 and 23.8 OOS in an acute setting (Stoikov et al., 2018). Whilst both studies evaluated OOS for pre-registration physiotherapy students within Queensland, a potential reason for this observed difference may have been due to external placement factors not considered by the current study, such as client availability and differences in placement structure (for example, the number of student/s to educator/s ratio). Furthermore, the role of the student differed in the current study, due to the inclusion of an 'observation' role in client care. The placement pattern for both studies was similar and a trend for non-significant increase in OOS from Week 3 to Week 4 was also observed. As statistical significance was not reached, this suggests a plateau in mean OOS between Week 3 and Week 4, indicating stability of the OOS delivered and therefore provides support for the decision to minimise additional student workload and to only collect two weeks of data during a five-week clinical placement. It is plausible that the observed increase in OOS may be due to utilising the 'student workforce' to extend capacity during the pandemic, therefore further research is warranted in examining the feasibility of using the student workforce to build capacity during a pandemic, whilst ensuring adequate supervision and quality learning opportunities.

Type of consultation and role of the student

Interestingly, whilst telehealth/tele-rehabilitation have been an important and much discussed feature of outpatient physiotherapy practice during the pandemic (Twogood et al., 2020), most consultations in this study were conducted face-to-face. In both the rehabilitative and acute clinical settings, consultations

occurred almost exclusively face-to-face (94% and 99% respectively) with students actively managing clients as the responsible practitioner for >80% and >90% of consultations for both respective settings. The program structure of the university included in this study resulted in students being allocated to an acute or rehabilitation placement/s only, with musculoskeletal placements occurring prior to the study period. The role of telehealth in ensuring continued patient access to outpatient physiotherapy care, as well as a viable stream of clinical placement capacity, was therefore not evaluated in the current study. Future research is warranted to evaluate the role of technology in the virtual outpatient physiotherapy setting and how this strategy has supported physiotherapists to maintain service delivery and continue to facilitate clinical placement activity.

Demographics and case mix

The case mix and client demographic data from the Clinical Portfolios further detailed the experiences of the students. In both the acute and rehabilitation clinical settings, the average age of the client was predominantly over 65 years of age. These findings are representative of the population whom physiotherapists manage, and are reflective of the Australian population accessing healthcare services ([Australian Institute of Health and Welfare Report, 2019, 2020](#)). The primary reason for clients accessing treatment was also aligned with the expected case mix of either an acute or rehabilitation setting. Effective regulation of physiotherapy programs through clear accreditation standards ensures physiotherapy students are provided quality education opportunity and have met the required entry level of the profession before graduation ([Almeida, Bury, Gasherebuka et al., 2020](#)). The Clinical Portfolio provided evidence that the included cohort of students managed a caseload reflective of the 'focus' clinical area. These findings provided support for the students' work readiness with comparable capabilities to previous graduated cohorts.

The future health workforce

Securing the future workforce of capable graduates is a continued issue raised by professional bodies, future employers and higher education institutes ([Almeida, Bury, Gasherebuka et al., 2020](#)). The profound impact of COVID-19 has been observed internationally on populations and health workforces, with fatigue and health care infection rates threatening ongoing care and management of clients in many nations ([Nguyen et al., 2020](#)). Consequently, students' timely graduation and registration is critical to ensuring a sustainable source of work ready new graduate health professionals ([Department of Health, 2020](#)).

Clinical placement provides students with opportunities to translate their acquired knowledge and skills into practice in preparation for transitioning to the workforce. Due to the anticipated changes to placement case-mix and structure, there have been concerns on the calibre of the graduating cohort. However, for the included cohort, high OOS within a familiar learning model indicates adequate learning opportunity was provided. The continuation of clinical placement to ensure a sustainable source of new graduate physiotherapists is key to health work force planning. The current study provides support for students' ability to deliver healthcare during an unprecedented time. Perhaps what we are now seeing is a new generation of physiotherapists uniquely capable to work within future pandemics, implement digital platforms and creative service delivery, whilst ensuring patient-centred physiotherapy care. All students included in the current study graduated on time at the end of 2020. Future research is therefore recommended to track the employment of the class of 2020, and their transition to registered practice. This could be conducted through semi-structured interviews with both the new-graduate physiotherapists and their employers.

Early lessons learnt from the introduction of a Clinical Portfolio

Whilst variability of the clinical environment reflects contemporary health care practice, it creates challenges when monitoring the breadth and type of student experience ([Health Workforce Australia, 2011](#)). A Clinical Portfolio provides a strategy to document a holistic 'snapshot' of a student's clinical learning experience ([Coffey, 2005](#)). Utilisation of a Clinical Portfolio in clinical education is not a new concept, and has been used previously to document not only clinical experience, but to facilitate reflective practice, by providing a means to reflect on events and experience ([Constantinou & Kuys, 2013](#); [Rawlins](#)

et al., 2018; Smith & Branstetter, 2016). Whilst reflective practice is regarded as a key component of clinical education, incorporating both reflection and documenting clinical experience in the one portfolio requires consideration and is time consuming. Previous research has shown that whilst around 90% of physiotherapy students agree the reflection component of a Clinical Portfolio is useful, only half said they would continue to use it on subsequent placements (Constantinou & Kuys, 2013). The Clinical Portfolio model implemented in the current study demonstrated stable OOS for the two weeks captured, and had high completion rates. This format may therefore provide a 'user friendly' alternative to a traditional Clinical Portfolio.

Opportunities and limitations

The authors recommend the Clinical Portfolio as a potential strategy to ensure ongoing monitoring of students' placement experience and assist placement academics in objectively planning students' placement experiences. The main outcome measures of interest in this study were OOS and client case mix, however the assessment outcomes for students during this period was beyond the scope of the current study. A quality placement is one that provides students with adequate opportunity to apply learning as well as demonstrate clinical competencies, thus further investigation is warranted that includes learning experience as well as student assessment outcomes during the pandemic. There are several key limitations in the current study. Findings were collected from one cohort within Australia and may not be generalisable. In addition, the study focussed on two specific clinical areas, rehabilitative and acute settings, and therefore may not be extrapolated to other clinical settings. The current body of work provided insight into the role of physiotherapy students as first line practitioners during this period, specifically in the case mix and learning model primarily employed. To date, previous literature has examined a typical placement experience for physiotherapy students. What this study adds is that the quality of clinical placement experience within the state was upheld during the early stages of the COVID-19 pandemic for the rehabilitative and acute settings. The study methodology was strengthened by the concurrent nature of the data collection, reducing the risk for recall bias and completion rates of the Clinical Portfolio were good to excellent suggesting the format was not burdensome to complete. Whilst the Clinical Portfolio evidences positive outcomes for the included cohort of students in this study, the COVID-19 pandemic is a constantly evolving landscape from which we must continue to evaluate outcomes, collaborate and learn from different placement models implemented in response to the pandemic.

Conclusion

The implementation of the Clinical Portfolio has provided a timely strategy to evaluate the impact of the COVID-19 pandemic response on physiotherapy student clinical placement experience and demonstrates the ability of the physiotherapy profession to adopt a 'business as usual' approach to clinical placements. This was achieved through allowing students to shadow any change to 'usual duties' for their supervising physiotherapist, enabling students to learn with and from the 'new' practice, as determined by COVID-19. The continuation of clinical placements has a role in not only training the future health workforce but also ensuring the long-term needs of the population are met through the provision of a sustainable source of new graduate physiotherapists. The COVID-19 pandemic continues to pose a threat to physiotherapy clinical programs, and ongoing evaluation and sharing of lessons learnt by the profession is recommended.

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Ethical approval

Ethical approval and informed consent were obtained prior to commencement of the study. The study was approved by the Griffith University Human Research Ethics Committee, Gold Coast, Australia (Reference 2020/321).

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