

The Association of Paediatric Chartered Physiotherapists COVID-19 Survey Analysis: Education and Research

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Introduction

The paediatric physiotherapy profession offers a range of academic and clinical career pathways, encompassing roles in research and education across higher education and clinical institutions.¹ Physiotherapists also contribute to the professional development of others, as educators for clinical placements, mentorship and apprenticeship programmes.

Research in paediatric physiotherapy underpins safe, effective practice and can promote the value and impact of the physiotherapy profession. Research engagement has also been linked to improved patient outcomes and forms part of UK Care Quality Commission Inspections.^{2,3} During the last decade, the UK has observed an expansion of postgraduate physiotherapy programmes, enabling clinicians to develop the knowledge and skills to undertake research activity. Organisations such as the National Institute of Health Research (NIHR), in partnership with the CSP, have also established significant research opportunities through mentorship programmes, courses, workshops, support networks and funding fellowships, with specific awards targeting paediatric research. These efforts have embedded career development pathways within the paediatric physiotherapy profession, bridging the gap between academic research and clinical practice, and building research capacity into the workforce.

Education in paediatric physiotherapy aims to support workforce development, building knowledge and skills for students, colleagues and individuals. In recent years, the CSP has observed a significant expansion in physiotherapy education, with a 27% increase in physiotherapy programmes. The UK now offers more diverse entry routes than ever, following the introduction of physiotherapy apprenticeships⁴, reflecting the importance of educator roles across clinical practice and academic institutions.

The outbreak of COVID-19 has had a significant impact on UK research and education practice. The NIHR re-directed resources to COVID-19 related research, pausing active clinical trials and those intending to start. In education, workforce capacity pressures resulted in temporary Health and Care Professions Council registration of final year students and paid support worker roles for second year students. UK wide clinical placements were paused and higher education physiotherapy programmes moved online⁵.

In response to these changes in roles and practice, research and education was highlighted as a key *a-priori* domain by the APCP working group and subsequently formed a core element of the APCP COVID-19 survey.

Aim and Objectives

This project aims to explore the experiences of paediatric physiotherapists in relation to research and education during the COVID-19 pandemic in the UK. This will be achieved through the following objectives:

- To identify the changes in education and research practice
- To identify the challenges faced within education and research practice
- To identify the opportunities encountered within education and research practice

Synthesis of these shared experiences will inform APCP priorities to support paediatric physiotherapy clinicians, researchers and students across the UK.

Method Summary

An electronic survey was sent to all APCP members between June 4th and June 17th 2020. A qualitative approach utilising Framework Analysis (Ritchie 2014) has been applied. A detailed methodology of the design, development delivery and analysis of this electronic survey is reported in the introduction and methodology section of this series. Further consideration of methodological limitations within this project have been detailed in the Introduction and methodology section. This domain of this survey was explored through four key questions. These are presented in Table 1.

Table 1: Survey Questions	Type of question
1) Does your role involve education i.e. clinical education, lecturing or research?	Closed (yes/no)
2) How has your education / research role changed within this period?	Open ended
3) Please share any education / research challenges you have experienced during this period	Open ended
4) Please share any education / research opportunities you have experienced during this period	Open ended

Respondent data was analysed across all survey questions using a structured framework synthesis. A detailed data analysis process is reported in the Methodology section of this series. Within this survey domain, raw data was extracted line-by-line to develop themes and subthemes, supported by NVIVO 12 software. Microsoft Excel was used to facilitate comparison of demographical and raw data within and across themes. Descriptive statistics were used to support qualitative findings.

Results

N=176/472 (37%) respondents reported that they undertook research and/or education responsibilities as part of their role. This cohort represented members from all regions, settings, employers and specialities. Available demographic data identified those more likely to confirm research and/or education activities as part of their role worked within a tertiary setting, were employed as a Band 7 or 8 and specialised in neuromuscular or neonatal care. Within regions, Scotland had the highest percentage of respondents undertaking research and/or education; the South East region had the lowest. Please refer to Table 2 for detailed characteristics of respondents within this survey domain.

Table 2: Characteristics of respondents									
UK Region	N	Setting	N	Speciality	N	Employer	N	Band	N
East of England	13	Hospice	0	Independent	6	Academic	1	5	0
London	35	Other	10	MSK	32	Charity	10	6	28
Midlands	19	Preschool	1	Neonatal	7	Independent	20	7	107
North East & Yorkshire	20	Primary	89	Neurodisability	92	NHS	141	8	29
North West	22	Secondary	27	Neuromuscular	11	Other	3	Missing	12
South East	13	Tertiary	40	Other	18	Social enterprise	0		
South West	14	Private practice	2	Respiratory	9	Missing	1		
Northern Ireland	5	Missing	7	Education/ research	1				
Scotland	21								
Wales	10								
Unknown	4								

Of the remaining 296 respondents that answered 'no' to the initial survey question, those less likely to identify education or research as part of their role worked within a primary care setting, were employed at a band 5-6, or specialised in independent/private practice. Unexpectedly, only 1 out of 4 respondents employed by an academic institute answered 'yes' to undertaking research and /or education as part of their role.

Only 5% of respondents reported no change in their role during this period; the majority of these worked in London-based tertiary specialist centres or independent/private settings. The remaining 95% of respondents portrayed an overarching withdrawal of education and research during COVID-19, depicted in cancellations of lectures, conferences, courses and student placements, closures of academic or research workspaces and a perceived flooding of resources into essential clinical services. These experiences emerged through 3 core themes, presented in Table 3.

Table 3: Overarching Themes	Subthemes
Theme 1: A move towards virtual teaching and assessment	Understanding Technology Interaction and Learner Engagement Development of Educational Resources Accessibility and Sharing of Education Virtual Assessment of Learning
Theme 2: Cancellation of clinical education	Student Clinical Placements Recommencing Student Clinical Placements Clinical Education within the Team
Theme 3: Taking a step back from research activity	Suspension of Research Activity Barriers to Continuing Research Partnerships in Research A Vision of Future Research

Theme 1: A move towards virtual teaching and assessment

The ongoing need for education endured throughout COVID-19, as academic programmes continued online, clinicians were redeployed to unfamiliar areas of clinical need and workforce capacity was supported by new starters⁵. To maintain safety of educators and learners, education was forced onto a virtual platform. This theme was concluded with confidence, portrayed adequately by over a third of respondents and upholding relevant representation, in which all demographical cohorts were included, except those working in hospice settings. Respondent answers focused on what was lost and gained from a transition to virtual delivery of education.

Understanding Technology

The increased use of technology as an education platform was evident in reports of delivering lectures and webinars via Zoom and Microsoft teams, in which '*technology glitches*' (R201) were commonly referenced as a challenge. Respondents widely acknowledged a digital learning curve, highlighting a key challenge for educators transitioning to virtual platform.

'Just learning the skills but even though I am not very technical I have adapted quickly which I've impressed myself (as I'm not a youngster!!)'. (R408)

However, within the clinical setting, reports of accessing digital training were scarce, with one respondent expressing concerns about '*understanding how best to make use of technology to be most effective*' (R186).

Interaction and Learner Engagement

Respondents discussed the loss of interaction delivering education through a virtual platform, such as debating clinical research, difficulty reading the room, cues missed and a concern over learner engagement. One respondent reported:

'Many people are feeling exhausted from this use of technology and do not always fully engage within video learning'. (R162)

Other respondents referred to the creativity of virtual teaching using online forums and group work, videos, you tube and dolls for practical sessions, with one respondent noting *'great feedback'* (R154), suggesting more positive outlooks of learner engagement.

Development of Educational Resources

Respondents referred to the time-consuming preparation of online resources, such as adding voice overlay and including extensive notes, ensuring learners could understand the resources in the absence of an educator. Although one respondent disagreed, stating:

'short teaching videos are quick and easy to make, can be tailored precisely to your colleagues' needs and are readily available repeatedly and whenever suits'. (R343)

Other respondents reported to have more time to develop educational resources for clinicians, families and students. This time was predominantly sourced from a loss of workload dedicated to delivering face-to-face training and education, as one respondent noted:

'During this period though because my role in training staff in safer handling has not happened. I have had more time to streamline training packages, review what these will look like in the new climate'. (R88)

Accessibility and Sharing of Education

Respondents widely recognised the accessibility of a virtual teaching platform. In their role as learners, respondents reported access to online learning resources from the NIHR, APCP, CSP and Royal College of Paediatricians and Child Health. In their role as educators, they highlighted opportunities to reach a wider audience, not just nationally but internationally:

'I was involved in delivering a university course in another country'. (R152)

The theme portrayed a sense of community, in which respondents reporting sharing of education resources both within and beyond clinical and academic institutions:

'We sent the PowerPoint to schools and university to allow them to have access to the information online'. (R60)

Developing a resource section for students to access free courses online webinars, talks that they can go to if we are unable to be with them at the time'. (R371)

Virtual Assessment of Learning

Two respondents shared their experiences of virtual assessment; one noted concerns about ensuring learning after delivering training, whilst another perceived an online viva examination to be a success.

Theme 2: Cancellation of Clinical Education

Of the 176 respondents completing this survey domain, 52% noted a change in their role as a clinical educator. They described their role in reference to student placements, in-service training, carer training and upskilling staff members as part of redeployment. The theme represented over half of respondents from all demographic cohorts except independent/private sector members.

Student Clinical Placements

Within the cohort, 66% described a loss of their role as a clinical educator, resulting from cancellation of student placements. Few attributed this to academic institution decisions. The majority of respondents described cancellation due to clinical organisation constraints, including redeployment of staff or those working from home, limited delivery of face-to-face provision, lack of opportunities to gain competencies, social distancing, insurance and safety:

'Unable to provide student placements as working in community and stopping face to face work has impacted on our ability to offer hands on for students'. (R85)

'Students are not insured to attend placement at present therefore placements have been cancelled'. (R416)

Only one respondent, based in a London secondary setting, working within the paediatric MSK speciality, described taking on virtual students, but did not provide any further details.

Recommencing Student Clinical Placement

The majority of respondents anticipated the return of students in the near future, with only one respondent stating they would not be taking students back. Three respondents were expecting students as soon as 'next week', all of which worked within acute settings, specialising in paediatric MSK. The delivery of virtual therapy was considered in these placements:

'we are due to have our first paid student next week. There placement will have to include virtual clinics and telehealth will become a part of our teaching'. (R146)

'Students are starting with us this week. We are hoping to encourage them to help us develop more resources to help us through this time. Such as online video for lower limb rehab and online DCD exercise programme'. (R90)

Some respondents portrayed more caution, detailing discussion and careful planning of student placement commencement.

'... We await guidance as to what this may look like going forward into the next academic year'. (R111)

'Lots of discussion at present around the return of students and how we can manage that in the community with social distancing - travelling together, getting hands on, office space. The fact that we are all working from home at present. Student who was supposed to be with me at the moment, but looking at how we can offer some sort of placement before she goes back to university'. (R371)

Other respondents described concerns about the experience and skills students will gain from virtual therapy, whilst others described the need to restore face-to-face provision before recommencing student placements.

'Student education has stalled and when we do have students there is minimal clinical experience that they can really gain with the majority of our appts being via telephone or video'. (R452)

'Student placements have been suspended and unlikely to recommence until more services are restored to ensure variety of placement and competence'. (R271)

Clinical Education within the Team

Respondents referred to a loss of their role in delivering clinical education to team members. This was due to constraints of social distancing, staff absence, workplace closures, reduced time and clinical pressures. Some respondents reported a move to virtual clinical education. Only 7 respondents described teaching face-to-face in a clinical setting, supporting new starters, targeting training for therapy assistants and upskilling carers and staff, both within physiotherapy and across other disciplines. The majority of these respondents worked within respiratory specialities and were employed in NHS primary and secondary settings across Northern Ireland, Midlands, Scotland and London.

'Increased nursing staff and basic grade upskilling in paediatric modalities including airway and bipap'. (R472)

'It hasn't really other than having to up skill non respiratory staff for pandemic'. (R305)

'We feel it is currently unsafe to take students but I have been involved in the on call training of our junior staff'. (R310)

'Involved in up-skilling colleagues to work in other areas during Covid19' (R109)

'On hold while re-assigned to rapid response for a few weeks but back to carer training now'. (R193)

Theme 3: Taking a step back from research activity

From the survey results, 20% of respondents referred to research activity as part of their role, representing paediatric physiotherapists from all workplace settings, employers, and UK regions, except Wales. The theme revealed strong coherent findings, although less respondents contributed to this theme, with underrepresentation of respondents working within respiratory specialities.

Suspension of Research Activity

Paediatric physiotherapists reported a significant change in their role, with nearly all of respondents portraying a step back from research activity. Only 2 respondents continued researching with minimal change, although both confirmed to be in the later stages of their study:

'Luckily all data was collected otherwise we would have had to stop the project'. (R233)

'I do not teach, but my research moved on quite well. I developed 2 papers whose research was already completed'. (R149)

Withdrawal of research activity encompassed cancellation of training courses, research team meetings, conferences and associated abstract submissions. Respondents attributed this to prioritisation of clinical services, face-to-face restrictions and subsequent loss of support from research departments, funding and allocated research time, as resources were redirected to COVID-related research only.

'Personally, I'm not involved with any research projects that are currently running but the funding for one proposal has now been pulled due to COVID'. (R200)

'I only started the role in April so unsure, I have been working on research proposal but little time to complete application'. (R383)

Barriers to Continuing Research

Respondents continuing research activity were halted by imposed recruitment suspension. Those few continuing to recruit were limited by 'shielding' participants, restricted travel and difficulty building researcher-participant relationship virtually. One respondent shared their research challenge as:

'Building a rapport with new families over the phone/ videocall in order to be able to ask them to be involved'. (R400)

Respondents who had successfully recruited to their study were restricted by loss of access to face-to-face data collection:

'...I was conducting research around zika virus and had to stop as unable to conduct standardised assessments (Bayley III) via teletherapy'. (R351)

'Unable to see the patients in clinical trials face to face at this time, limited outcome measures taken virtually' (R332)

Furthermore, respondents reported the need to undertake ethics amendments to ensure continuation of research. Ongoing research activity was impacted by loss of clinical space and equipment and academic institution closures.

'Difficult to use our therapy rooms/ equipment for research as our department is closed' (R174)

Partnerships in Research

The disparity between research and clinical priorities across health and academic institutions were apparent, as respondents highlighted challenges accessing their clinical partners during COVID:

'Research- difficulty getting the data needed for MSc dissertation due to pressures on hospital'. (R154)

'Support from Trust research department reduced as prioritising covid 19 research'. (R69)

Respondents acknowledged the wider healthcare pressures, reluctant to reach out to clinical providers in continuing or restarting research activity:

'Feel that it is inappropriate to try to access clinical partners for non-covid research at this time'. (R434)

A Vision of Future Research

Despite the overwhelming challenges described, respondents highlighted opportunities to facilitate new research. Respondents referred to COVID-related research funding, time as a team to reflect on practice and new ways of working, updating databases and undertaking audits or analysis of outcomes during this period:

'COVID provides a unique opportunity to look at the impact of a lack of therapy has on our families - we are looking to use the CPIP database to look at pre and post COVID measures'. (R200)

The novel move to a virtual platform also contributed to new research opportunities in virtual clinic provision, international collaborations and accessible research training, as one respondent described the 'generous access' (R149) to NIHR online courses. Conversely, a minority of respondents who described their study to be 'on hold' or 'cancelled' declared there were no research opportunities in the near future. Furthermore, one respondent described the challenges of future research planning whilst uncertainty of service provision existed.

Discussion

Within this survey domain, 176 respondents identified to have a role in education, including clinical education, lecturing or research. Of these, 95% identified changes within their role, summarised through three key themes; Theme 1 described a transition to virtual teaching only, theme 2 explored the temporary pause of clinical placement education and theme 3 portrayed a withdrawal from research activity. Each theme depicted specific challenges and opportunities encountered within their role and practice.

When asked what had changed during this period of COVID-19, an overwhelming majority of respondents described a withdrawal from their educator and/or research role, as clinical priorities moved to the forefront of healthcare. Education and research are essential to maintaining quality, safety and effectiveness in delivery of paediatric physiotherapy practice, especially during a period where changes in service provision are significantly altered without a known understanding of its impact.

As we look towards an uncertain future in which we continue our roles alongside COVID-19, findings from this survey domain raise an overarching question: **How do we safeguard and sustain education and research in paediatric physiotherapy practice?**

The withdrawal of face-to-face education and subsequent transition to virtual platforms was coherently described by respondents, both clinically and academically. Although digital learning platforms are well established in higher education institutions, findings from a recent Johanna Briggs Institute scoping review found physiotherapy programmes delivered a blended approach, in which digital learning is supported by face-to-face learning, with author-reported outcomes from 6 UK-based studies concluding student preferences for face-to-face delivery⁶. Furthermore, its use in clinical practice remains novel, traditionally focusing on hands-on practice-based learning. This was reflected in reported challenges of understanding technology platforms, with scarce reference to accessing digital training, corroborating with findings from the Technology domain of this series. Respondents who described positive perceptions of digital learner engagement also reported knowledge of diverse digital platforms, supporting the need for educator-focused digital training to plan, design and deliver virtual education to its full potential and safeguard a sustainable approach to future healthcare education. Future exploration into stakeholder perspectives of virtual learners across academic and clinical environments may provide understanding of interaction and engagement with digital teaching methods alone, compared to established blended learning approaches.

Student clinical placements dominated the education and research domain of the survey, with over half of respondents identifying their role as a clinical educator. In response to the UK-wide pause of clinical placement, respondents revealed conflicting perspectives surrounding the recommencement of work-based learning for students. These conflicts were linked to wide-ranging virtual service provision across different settings and specialities, and its unknown impact on placement expectations, clinical experiences and opportunities. Uncertainty was evident in accounts of future placement planning, with one respondent awaiting guidance for the next academic year. Findings highlight urgent need for collaborative placement planning and leadership from governing bodies to guide a sustainable approach to clinical education for the next generation of physiotherapists. It is noted that academic-based respondents were under-represented and students were not part of the respondent cohort, directing further exploration into stakeholder perspectives to understand the experiences, opportunities and challenges of partially or fully-virtual clinical placements.

Findings reflected a UK-wide pause of non-COVID clinical research, attributed to prioritisation of COVID-related research across clinical research networks and rising clinical partnership pressures.

Respondents depicted a loss of critical clinical-academic collaborations and a reluctance to rebuild these partnerships over time, acknowledging the needs of the wider global health crisis and the disparity between academic and clinical organisational priorities during this period.

Since entering a new phase of the pandemic, the NIHR has reached out to researchers, providing a 'Framework for restart' to guide the recommencement of clinical research activity, with consideration of the urgency, viability, safety, capacity and site readiness⁷. However, ongoing clinical healthcare pressures may impede the restoration of a fully collaborative clinical-research partnership.

Those respondents endeavouring to continue research activity safely were thwarted by significant challenges transitioning to virtual data collection and intervention delivery. Recent studies have established virtual feasibility and psychometric properties of specific monitoring tools traditionally implemented face-to-face^{9,10}, setting a precedent for future research. Similarly, a recent systematic review explored a decade of studies delivering telerehabilitation in children with disabilities, concluding the need for further research to better understand the characteristics of delivering effective telerehabilitation interventions in paediatric healthcare¹¹. In an uncertain UK healthcare climate, flexibility and adaptability should be embedded into research designs, with consideration of remote monitoring tools and intervention delivery to promote participant and researcher safety where appropriate. This demands further exploration into the rigour and ethical implications of virtual research, such as technology inequalities.

The impact of paused, delayed or discontinued research on CYP and their families affected by non-COVID related conditions has yet to be established and should be considered by researchers as they recommence activity.

Further consideration of methodological limitations within this project have been detailed in the Introduction and methodology section.

Conclusion

The findings of this survey further our understanding of how research and academic/clinical education roles contribute to the diverse and versatile paediatric physiotherapy identity. Yet, the impact of COVID-19 has led to temporary withdrawal of these traditionally face-to-face roles. Although higher education has established presence within virtual environments, clinical research and clinical education, including student placements have yet to establish such a transition in paediatric physiotherapy. This has resulted in significant discontinuation of activity and requires further attention to explore the long-term impact across research and education practice and roles. Efforts to move forward require a collaborative and sustainable working partnership between academic and clinical institutions, with further inquiry into the viability, experiences and impact of virtual placements and virtual research alongside COVID-19 clinical pressures.

The findings of this project have raised 3 key priorities to support research and education roles within paediatric physiotherapy. These are presented in Table 4.

Table 4: Priorities for Supporting Research & Education Roles in Paediatric Physiotherapy	
1)	To advance paediatric physiotherapy educator's skills in design and delivery of educational programmes (including assessment) in the virtual environment to its full potential, in an aim to optimise learner engagement and interaction
2)	To establish / strengthen sustainable academic-clinical partnerships, which could facilitate development of viable clinical placements that would ensure the safety and wellbeing of patients, students and educators, whilst promoting hands-on clinical skills central to their professional identity.
3)	To explore the viability, ethical and rigour of virtual research, to support flexible and adaptable study design, methodology and intervention delivery that can be sustained in climates of uncertain clinical pressures, limited funding and interpersonal contact restrictions.

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