

## Student perceptions of the role of physiotherapy in the Paediatric Critical Care Unit (PCCU): A qualitative study

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### ABSTRACT

#### Background and Purpose

**Purpose:** To gather physiotherapy students' perspectives on the role of physiotherapy within a paediatric critical care unit to provide information to support undergraduate students and placement educators.

**Background:** PCCU cares for children and young people between ages 0-18 years who are experiencing life-threatening conditions and require close monitoring and medical support to maintain or restore normal body function (NHS England, 2015). In 2017 nearly 20,000 children were admitted to a UK PCCU (PICANet, 2018) and increased survival rates mean emergence of complex health conditions and co-morbidities; resulting in greater need for services such as physiotherapy. Physiotherapists play an important role in the patient's journey, however working in PCCU can be challenging due to matters such as mortality and morbidity, ethical dilemmas and communication difficulties. The CSP advocate students must accrue 1000 hours of clinical placement in a wide range of settings in order to develop a broad range of competencies and skills in the quest to gain accreditation (CSP, 2017), so physiotherapy students may spend time on a paediatric critical care placement and consequently experience these challenges. Gaining an understanding of physiotherapy student's perspectives of the role of physiotherapy in PCCU will ensure training needs are met at an undergraduate level and identify areas needing adequate support from clinical educators and academics, thus ensuring future students are prepared for the nature of the role and the environment.

#### Method

The study used an interpretive approach to gather students' perceptions of the role of physiotherapy in a PCCU. Data was collected from four semi-structured interviews with final year undergraduate physiotherapy students from one UK based University. Participants were selected via purposive sampling, as inclusion criteria required completion of a paediatric based placement and additional PCCU experience. A process of thematic analysis produced themes for discussion.

#### Results

Through a process of thematic analysis, four main themes were acknowledged. 1) the physiotherapists' role in PCCU, 2) the PCCU environment, 3) parental involvement and 4) thoughts and feelings. Each theme presented with multiple sub themes.

#### Conclusion

Results revealed education is fundamental in preparing for the reality of the role the physiotherapist in PCCU. Participants perceived they had received an appropriate level of clinical skills preparation however, did not feel prepared emotionally or mentally for what they perceived to be a complex and overwhelming clinical environment and role. These experiences led to identification of methods in which an academic institution could better prepare their students to ensure reductions in anxiety and improved confidence prior to and throughout clinical placements.

#### Key Points

- 1) Undergraduate physiotherapy students perceive a PCCU physiotherapist's role to be overwhelming
- 2) Undergraduate physiotherapy students feel their higher educational institutions prepare them for the practical nature of the PCCU physiotherapist's role.
- 3) Higher educational institutions should inform students of the complex nature of the PCCU environment and the physiotherapist's role, thus reducing anxieties and allowing the student to maximize every clinical experience and opportunity

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### Introduction

Paediatric Critical Care Units (PCCU) care for children and young people aged between 0-18 years old who are facing life-threatening conditions. Throughout 2017, the Paediatric Intensive Care Audit Network [PICANet]

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reported nearly 20,000 children were admitted to a PCCU in the UK with acute and potentially life-threatening conditions (PICANet, 2018) involving primary respiratory or cardiac diagnosis (Davis et al, 2018). Through advances in modern medicine, increased survival rates mean emergence of complex health conditions that include physical, cognitive and psychiatric co-morbidities; all of which increase the need for services (Hopkins et al, 2015) such as physiotherapy.

Working in PCCU may evoke a variety of emotions for physiotherapists. Clinicians must be prepared for the inevitable experience of mortality and morbidity, ethical dilemmas around care and communications challenges and also acknowledge the possibility of the emotional stress associated with such circumstances (Crowe et al, 2016). Fear of poor decision-making and resultant depression can also contribute toward emotions of despair and sorrow (Crowe et al, 2016).

As part of preparation for working in healthcare, Higher Education Institutions offering healthcare qualifications ensure students have access to clinical placements alongside academic studies, providing environments where they develop and practice their knowledge and skills to care for patients (Weurlander et al, 2018). The CSP advocate students must accrue 1000 hours of clinical placement in a wide range of settings in order to develop a broad range of competencies and skills in the quest to gain accreditation (CSP, 2017), therefore some physiotherapy students will spend time on a paediatric critical care placement and consequently be exposed to this patient group and experience associated challenges. It is important to understand the perceptions of these students so that adequate support is provided to prepare future cohorts undertaking placements and working in PCCU.

A literature search was conducted on PubMed, Research Gate, NICE, Google Scholar and Medline using the following search terms: "paediatric critical care unit", "paediatric intensive care unit", "PICU", "PCCU", "physiotherapy", "physical therapy", "treatment", "students", "education", "perceptions", "understanding", "knowledge", "impression". Internet searches of the CSP, the HCPC and NICE were also conducted using the same key words. Other relevant literature containing variations of these key words were also included based on their relevance and contribution quality. Appropriate literature published in English language between 2008 and 2019 was included. The literature review explored the role of physiotherapy in the PCCU; physiotherapy students' perceptions were the focus although due to a low volume of available literature, other healthcare professional students and qualified allied healthcare professionals [AHP] perceptions were included; this included medical and nursing students, qualified nurses and physicians. It could be considered all share the same healthcare-based values as the intended audience therefore allowing comparative parallels to be drawn. Similarities include putting patients and service users first, caring for those with the greatest health needs, working in partnership and as a team and valuing other who also work for the NHS (NHS Wales, 2016). However, physiotherapy students and qualified professionals are further regulated by the Health & Care Professionals Council [HCPC], which means they have more standards of proficiency to adhere by including being able to practice as an autonomous professional, exercising own judgment and being able to maintain a level of fitness to practice (HCPC, 2018). Parental perceptions were also included as their frequent presence while their child is in the PCCU could provide useful insights.

Key themes identified are 'Perceptions of PCCU' (Cochrane et al, 2008; Karras et al, 2014; Travlos and Hill, 2015), 'Emotions' (Shapiro et al, 2016; McLeod and Sonnenberg, 2017), 'Perceptions of The Role of Physiotherapy' (Dalley and Sim, 2001; Gupte and Swaminathan, 2016; Sharma et al, 2018), 'The Role of Physiotherapy in Paediatrics' (Hawkins and Jones, 2015; Morrow, 2015) and 'Education' (Travlos and Hill, 2015; McLean et al, 2014; Hough et al, 2019). Within these themes there appears to be a mixture of positive and negative perceptions of the role of the physiotherapist and the PCCU environment, from the professions own and other AHPs. Relevant literature indicated physiotherapists are valued members of the multidisciplinary team [MDT] however their role is not always understood (Dalley and Sim, 2001; Gupte and Swaminathan, 2016; Sharma et al, 2018). Synthesis of the literature finds physiotherapists are considered as either mobility experts or those that optimize function of the respiratory system.

This leads the researcher to acknowledge there is a gap in the literature in regard to all AHPs, including physiotherapists, understanding of the role of a paediatric physiotherapist. With Higher Education Institutes exercising clinical placements as a means of developing physiotherapy students' competencies and skills, it is important students are fully prepared for the nature of the PCCU physiotherapist's role and the PCCU environment. Therefore, this study will explore final year physiotherapy students' perceptions of the role of physiotherapy in the PCCU with a view of ensuring future students are prepared for the nature of role and the PCCU environment.

## Method

This study focused on an individual's personal experience and therefore exploits a qualitative approach (Austin and Sutton, 2014). An interpretive approach towards final year physiotherapy students' perceptions of the role of physiotherapy in the PCCU was utilized. This allowed the researcher to understand the topic from the point of view of the participant through personally engaging in conversation with them (Ponelis, 2015), focusing on their meaning and own interpretations of their experience (Richie et al, 2013).

### *Ethical approval*

This study received ethical approval from the School of Healthcare Sciences Research Ethics Committee, Cardiff University on 8/8/2019. Due to the potential emotive nature of the interviews a risk assessment was also conducted to ensure occurrence of emotional traumas to both participant and researcher were minimised and strategies in place to support both researcher and participants if required.

Informed consent was gained prior to participation with participants being aware they could withdraw from the study at any point. To maintain confidentiality, participants chose a pseudonym for transcription and publication purposes and all data was stored securely on the University IT system in line with University Data Protection policy (2018).

### *Method*

The target populations for this study were 127 final year undergraduate physiotherapy students who were from a single Higher Education Institute and had experience of being in a PCCU whilst on a paediatric clinical placement. Final year students were chosen due to the first and second year students not having completed a clinical placement at the time of data collection. Due to the specificities of needing knowledge and experience of a paediatric clinical setting, purposive sampling was used to select participants (Palinkas et al, 2015). An advertisement was placed in a private social media group of all final year students. Those meeting the inclusion criteria - 1) being final year physiotherapy students and 2) having undertaken a placement involving PCCU could email the researcher expressing their interest in participating.

One to one semi structured interviews were conducted to collect data. Open ended questions based on current literature, alongside a flexible protocol supplemented by follow-up questions, probes and comments (DeJonckheere and Vaughn, 2019) allowed the researcher to guide the interview in the desired line of enquiry (Jamshed, 2014) whilst allowing participant to voice opinions that may not have been considered by the researcher. A pilot interview was done to ensure questions were suitable and as minimal alterations were needed this data was also used alongside the 3 subsequent interviews in the final analysis. This small number of participants was due to the study being conducted by an undergraduate student over one semester, on a single cohort at a UK based University. Additionally, paediatrics is not a main area of physiotherapy and is instead a demographic encompassed within the three main areas of musculoskeletal, neurology and cardio-respiratory. Therefore, not all students would have undergone a paediatric placement, which posed as a limiting factor to the number of participants available.

Express Scribe Transcription software was used to transcribe audio files from the four interviews verbatim. Electronic copies of the interview were emailed to participants allowing opportunity to read the transcript to ensure it portrays truth in what was discussed. Transcript analysis followed Braun and Clarke, (2013) six phase process of thematic analysis, which embodies identifying patterns or themes from collected data through six stages (Maguire and Delahunt, 2017). Coding was done using coloured highlighting to establish recurrent themes.

## Results

### *Participants*

Five students expressed interest, four females and one male with an age range of 20-23 years old. All were of white British ethnic origin. One female was excluded prior to data collection as they did not meet the inclusion criteria of experience of a PCCU and instead had misread the information believing their experience of a NICU would support the research aim. Interviews were carried out in a quiet room within the University buildings.

### *Findings and Discussion*

Through a process of thematic analysis four main themes and subsequent sub themes were identified and are illustrated below (Figure 1). The four core themes are The Physiotherapist in PCCU, PCCU Environment,

Education and Thoughts and Feelings. A discussion of these themes will be documented using direct quotes from participants' transcripts and cited with pseudonyms chosen by participants during the data collection process. These will also be supported with relevant literature. Participants selected pseudonyms of Emily, Jenny, Aaron and Annabelle.

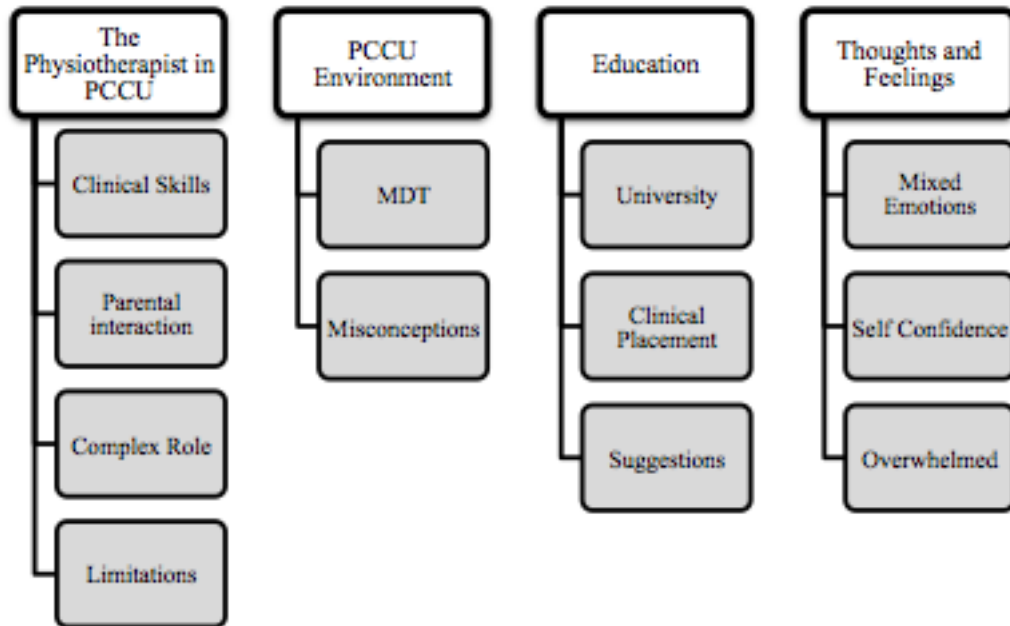


Figure 1 – Table of themes and sub-themes

### **The Physiotherapist in PCCU**

Prior to entering the PCCU, all participants stated they believed the physiotherapist would mainly assess the respiratory system and therefore, practice chest physiotherapy and respiratory management techniques. Findings relating to the role of the physiotherapist conform to literature published by Hawkins and Jones (2015) and Morrow (2015), which states commonly used techniques in PCCU are chest physiotherapy, especially manual hyperinflation, vibrations and positioning, with the physiotherapist aiming to increase expiratory flow and assist with sputum clearance, secondary to the patients presenting condition:

*“so suctioning, bagging, percussions, vibrations, like manual techniques so quite a lot of respiratory stuff” [Jenny]*

Jenny additionally made reference to a perceived idea of mobilising patients in PCCU as she had witnessed such therapy practiced in adult ITU to prevent deconditioning. Early mobilisation of critically ill adults has been recommended by Mendez-Tellez et al (2012), however the researcher did not find any study that recommended this treatment method in PCCU.

When discussing difficulties, the physiotherapist may face, such as realisation of how unwell the child is and ethical dilemmas facing families, Jenny identified her ability to manage her emotions by adapting her approach and thought process, which was highlighted by McLeod and Sonnenberg (2017) as a critical skills AHPs should develop:

*“I feel like there was a real emotional part, but you kind of have to take a step back from that and be like, I’m trying to help the best I can” [Jenny]*

In regards to the PCCU physiotherapists’ role, all participants reported familiarity with involving parents in therapy and viewed parental presence as beneficial to the child:

*“There are plenty of mums and dads who are better physios... they understand their child and our patient better than we would” [Aaron]*

### **PCCU Environment**

Participants in this study reiterated Cochrane et al, (2008) findings that students have a preconceived misconception of the PCCU environment, which causes them to feel anxious about what they may witness

prior to their placement.:

*"Even with all the teaching we do in [university], there's definitely this in trepidation of like 'oh my god what's going to happen and how's it going to look' and there's going to be chaos everywhere" [Aaron]*

Although, as with the students in Cochrane et al, (2008) study, participants were relieved to learn the PCCU was not as previously thought. Emily and Aaron declared predetermined thoughts of a busy, overwhelming environment:

*"I was surprised at how dark and quiet it was. I had this idea it was lots of light and lots of stuff going on but compared to the main ward it was a very calm environment" [Emily]*

Furthermore, participants mentioned more staff were present on the unit than they originally thought would be and this allowed them to adopt a composed and positive mind set, mirroring findings by Shapiro et al, (2016) who discovered medical students' main emotions whilst in PCCU were positive, optimistic and hopeful:

*"You've got everyone around you... The specialist nurses, doctors, there's everyone around you so I feel that was quite helpful in making you feel calm because if something happens, you've got everyone else around you to help you as well" [Jenny]*

To further facilitate the students' ability to compose themselves Maxwell et al, (2015) state clinical educators bridge the gap between academia and clinical practice, which also reiterates Cochrane et al, (2008) initiative to support students as they develop their confidence in conducting clinical skills:

*"My clinical educator was there to help me through" [Emily]*

### **Education**

All participants mentioned receiving a form of paediatric education at university. As with that provided in Travlos and Hill (2015) study, Emily remembered attending simulation-based sessions and felt the level of exposure was sufficient for the placement. Whereas, Annabelle and Aaron discussed their experience as not very paediatric inclined and instead felt the importance of the provided sessions was to be able to transfer academically learned skills into the clinical environment.

*"It was more looking at those transferable skills and although we looked at treatment rationales and treatment options, definitely not so much in terms of assessment stuff and not anything like explicitly training for paed's" [Aaron]*

Cochrane et al, (2008) and Delaney and Bragge (2008) stress the importance of undertaking clinical placements as this holds highest rank for students transferring skills, developing their knowledge and additionally draws attention to the reality of patients and situations regularly experienced in PCCU.

*"I think most of my skills, even though I probably had the theory behind it and clinical reasoning, actually putting it into practice was all learnt from getting hands on in the placement" [Emily]*

Furthermore, all participants expressed the desire for academic teaching to ensure they are better prepared for the emotions they could experience as a PCCU physiotherapist, which imitates techniques utilised by Travlos and Hill (2015) and Hough et al, (2019) that helped to build confidence:

*"we could have done with a little bit more like scenario-based training or something, um, that could deal with a difficult situation where somebody is emotional" [Annabelle]*

Emily further suggested resources such as information sheets and previous student notes be made available on the university intranet to support independent learning for those who undertake a paediatric placement.

*"maybe having more resources on learning central that you don't go through in a lecture... its there for when you need it" [Emily]*

### **Thoughts and Feelings**

Notably, and conforming to Travlos and Hill's (2015) findings, participants mentioned sensing a mixture of emotions toward the prospect of entering the clinical environment and experiencing the physiotherapists' role.

Annabelle admitted feeling very worried about the forthcoming situations she may experience in PCCU, which echoes findings by Cochrane et al, (2008) who documented student's feeling nervous prior to a placement in which they would be working with very unwell children.

*"I was quite worried about going in and seeing sick children" [Annabelle]*

This suggests the majority of participants do not view themselves as mentally and emotionally prepared for their PCCU placement and therefore suggests their higher education institute should have provided them with clinical preparation and teaching sessions regarding PCCU as means to reduce pre-placement anxieties and improve self-confidence (Travlos and Hill 2015).

In addition, participants identified the sense of feeling overwhelmed on their placement for various reasons including when adverse incidents occurred, having to communicate with parents and the vast amount of knowledge and consideration implemented by a PCCU physiotherapist.

*"its not just the fact it's a child and you have parents there you also got the pathology and what's wrong with them as well that impacts the assessment which you need to consider so to have them skills to bring them all together its quite (pause) especially in the PICU environment, overwhelming" [Jenny]*

The concept of feeling overwhelmed in a PCCU was not identified in the literature review but does guide the researcher to ponder whether physiotherapy students would benefit specifically from academic preparation of the role and the environment.

When asked about their confidence going into the placement, the majority of participants stated levels of perceived self-confidence were initially low although they did develop and improve throughout the placement. This echoes Porter et al, (2013) findings that healthcare student's confidence improves with continued exposure on clinical placement.

*"Actual [physiotherapy] specific hands-on skills I did not feel confidence with before the placement...the whole placement confidence was growing... definitely I'd say I feel more confident now" [Emily]*

For physiotherapy students developing confidence in clinical skills begins in university (Hecimovich and Volet, 2009) however, Travlos and Hill (2015) and Hough (2019), report students subconsciously deem face-to-face contact with paediatric patients as the most appropriate method of building confidence in their clinical skills.

## **Limitations**

This study was conducted with a single cohort of final year physiotherapy students at one UK based Higher Education Institute. This reduces transferability of findings and suggestions to similar populations, as it is unlikely other UK based undergraduate physiotherapy degree programs structure their course and teach their curriculum in the same way as the Institute utilized in this study. Additionally, all participating students have all been provided with the same educational curriculum, therefore it is likely similar views and opinions were expressed during individual interviews. The researcher's position as a fellow physiotherapy student in the same cohort as the participants may also have had an impact on the data gathered due to the concept of social desirability. Participants may have wanted to please the researcher and provide answers desirable to the study questions during their interview, as they may have known the researcher. Furthermore, the researcher's position as an insider could be seen as threatening to the quality of research as there is room for a potential bias (Ross, 2017). This could be due to the researcher being well informed of the topic and therefore holding a predisposition towards what information they would like to get from participants (Saidin and Yaacob, 2016).

Time constraints and availability of resources meant this study did not utilise methods of triangulation to ensure validity of results. This has a detrimental impact on the dependability of the study. Triangulation of data could have strengthened findings through use of another researcher to analyse data separately from the study (Nowell et al, 2017). As the researcher was acting independently, this process was not utilised and therefore could interfere with the credibility of the results (Austin and Sutton, 2015) and is acknowledged as a study limitation. A further limitation is the small number of participants utilized in the study. Vasileiou et al (2018) suggest sample sizes that are large enough to unfold a new understanding of the research, but small enough to allow for a deep analysis. Guest, Namey and Chen (2020) believe 12 interviews are typically needed to reach a high degree of saturation. This is further supported by Baker and Edwards (2012), who state

a maximum of 12 participants is enough to provide an undergraduate researcher with experience of planning and transcribing. Therefore, it is very unlikely saturation of ideas and themes was achieved from the single population's experiences. However, this study still provides valuable data for educators both in academia and in clinical practice.

### **Recommendations**

Further research in this field is recommended. A cross institute study to explore other Higher Education Institute physiotherapy students' experiences of the role of physiotherapy in PCCU would allow for further in-depth exploration of the topic and provide a comparative element for the way physiotherapists view their own profession. Further research into how students can be better prepared for PCCU placements would support curriculum and placement development through identification and implementation of what aspects students view as important.

### **Conclusion**

At present, there is a paucity of research into physiotherapy students' understandings and experiences of the role of physiotherapy in PCCU. It is important students are fully prepared for their clinical placements as this allows them to seize and maximise every experience and opportunity presented to develop their knowledge and clinical skills in the quest to qualify and gain accreditation. The results of this study indicate participants felt they were provided with sufficient knowledge of the practical role of the PCCU physiotherapist and have great understanding of the clinical skills that can be utilised. Yet, there still appears to be scope for the Higher Education Institute to have better prepared their undergraduate physiotherapy students for the reality of the PCCU environment and the potential emotions that are likely to be experienced during a clinical placement. Furthermore, it appears participants would have felt less anxious if provided with more information regarding the complex nature of the role, specifically the reality of working with very unwell children, the potential situations that may arise and the management of parents. This was recommended in studies conducted by Travlos and Hill (2015) and Hough et al (2019) who both conclude students' self-efficacy of paediatric assessment and management skills significantly improved when provided with a paediatric specific pre-placement education. For their Higher Education Institute, participants in this study suggest more scenario-based teaching sessions as this has potential to improve students' understanding of the physiotherapist's role and therefore enhance the level of care physiotherapy students provide to their paediatric patients. This method is supported within education literature to drive student's deeper learning as it involves constant modification of a task and encourages the learner to demonstrate their understanding (Stuyven, Dochy and Janssens, 2005). However, not all students are interested in or undertake a paediatric clinical placement and it is unlikely that all other UK based physiotherapy undergraduate programs structure their courses and teach their curriculum the same way as the educational institute the participants in this study attended. The final suggestion of providing information sheets on a university intranet page seems the most plausible method of reducing pre-clinical placement anxieties and improving self-confidence and thus providing a full understanding of the role of the PCCU physiotherapist, whilst further research is conducted nationwide.

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