

2020-01-01

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<http://hdl.handle.net/10026.1/16909>

10.14624/NR1903006

Neurologie und Rehabilitation

Neurologie & Rehabilitation, Hippocampus Verlag

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Published in Neurological Rehabilitation, 2019; 25 (2): 113-117

DOI: 10.14624/NR1903006

Accepted 28.1.19

Title: Influencing neurological physiotherapy practice through academic education: a commentary.

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Key words: physiotherapy, education, evidence based practice, research

Abstract

The academization of physiotherapy education in the United Kingdom has steadily evolved since validation of the first degree programme in 1976. This commentary provides a synopsis of the impact of this transition from a vocational qualification to an academic degree which places a heavy emphasis on critical thinking and evidence based practice. It reflects on how this is demonstrating to be an important driver for shaping the future of physiotherapy practice.

Background

Physiotherapy education within the United Kingdom (UK) has a long and established history since the formation of the Chartered Society of Physiotherapy in 1894. Originally established in Schools of Physiotherapy based within practice and Further Education (Government UK, 2014), there are now 68 qualifying programmes. While the majority are currently at degree level (n = 41, 60.29%), there are a significant number of Masters programmes (n=25, 36.76%) (CSP, 2018a) and in 2016 the first Doctoral programme was approved (Health and Care Professions Council {HCPC}, 2018a). This reveals physiotherapy education in the UK has followed an increasingly academic path and is now provided across all three levels of qualification described in the Framework of qualifications of the European Higher Education Area (2018).

The transition from Further Education into Higher Education started in 1976 when the first degree programme was validated. However, it was not until 1994 that the academic entry level to a qualifying physiotherapy programme was raised to a bachelor degree with honours. Of historic interest, this coincided with the introduction and rise of “evidence based medicine” (Guyatt et al., 1992) within medical education. This Bachelor of Science (Hons) qualification in Physiotherapy is now well established (HCPC, 2018b) and the knowledge and skills attained seen as the bedrock of autonomous practice. As an illustration, physiotherapists within the UK do not require referral from a medical practitioner to treat a patient. They have the authority to make decisions based on their assessment, and the freedom to make clinical judgments, choices and actions.

It is challenging to evaluate the impact of the transition from vocational to degree qualification due to the multifactorial nature of drivers at that time and the coexistence in practice of physiotherapists qualified at Diploma and Degree level, both fulfilling the same roles. However, we would suggest that one of the key outcomes of this increased academization is the integration of critical evaluation skills within the curriculum, the attainment of research skills by all graduate physiotherapists, the implementation of evidence based practice (EBP) within the clinical setting, and the development of specialist and leadership roles within the profession. This commentary will consider how the academization of physiotherapy education in the UK may have influenced these outcomes, and the reach it is likely to have had in terms of advancing physiotherapy practice and expediting the development of neurological physiotherapy specific research. We will animate the commentary by including views from two neurological physiotherapy clinical academics.

Impact on clinical reasoning and the delivery of evidence based practice

The Health and Care Professions Council (HCPC) is the regulatory body for 16 health and care professions in the UK. Key to its role is setting standards for professionals’ education, training and practice. HCPC Standards of Proficiency (2013) require all physiotherapists to be able to engage in evidence based practice and work collaboratively to provide person centred care. These skills are reflected in level 2 of the EHEA Framework (2018). In the UK

the current entry level qualification provides the baseline skills of clinical reasoning, critical appraisal and an understanding of evidence based practice on qualifying.

“My undergraduate academic education provided me with the skills, scientific knowledge and research base to be an autonomous practitioner.” (Clinical Specialist Physiotherapist {Stroke}), National Health Institute Research Fellow).

Medical advancement, demographic changes and an ongoing drive for preventative medicine to reduce healthcare burden means it is crucial that clinical practice is evidence based to provide the best available person centred care and maximise the utilisation of healthcare resources. The UK professional body for physiotherapists, the CSP (2014, p3), endorse this view stating “of key importance is practitioners' critical engagement with the best available evidence, their commitment to remaining up-to-date with developments in the evidence base and appraising the need to change their practice in light of these.”

In our experience both the development and delivery of the curriculum ensures critical thinking is at its heart. By utilising a problem based learning approach within our programme we aim to ensure the complexity of clinical reasoning is understood (Pelaccia et al 2011). For example, from the outset physiotherapy students are required to critically consider the evidence base, within the context of both the clinical scenario and the patient’s wishes, as the basis of their decision making; this is fundamental to both the learning and assessment process. In our pre-registration honours degree level programme the design and implementation of an original research project across the final two years enables students to develop practical research skills, from question formulation to conclusion, in a facilitative and supportive environment. In doing so it provides them with the research skills necessary to implement service evaluation projects within the clinical arena.

Integral to the successful development of critical thinking skills at any level is the culture within which the teaching and learning occurs; both the academic and practice environment.

“Academic education combined with clinical placements developed my clinical reasoning skills which enabled me to deliver high quality, safe, and effective care.”

(Clinical Specialist Physiotherapist {Parkinsons Disease}, Research Fellow).

While it appears logical that the attainment of critical thinking skills required for the application of EBP will drive an improvement in person centred care, this is not without debate (Condo et al, 2016). The application, consolidation and development of these nascent skills post qualification is necessary to facilitate the evolution from the use of “uncritical” practice knowledge to one of “critical understanding” that facilitates person centred care (Petty, Scholes and Ellis, 2011a,b).

Metcalfe et al (2001) investigated barriers to the implementation of EBP in the National Health Service and exposed difficulties with accessing and understanding the literature; training at pre-registration and post registration level was proposed to redress this. A further survey of physiotherapists working in the community in 2000, reflected a similar picture with 59% (n=77) of respondents reporting a lack of confidence in critically appraising the literature (Bourne, 2007). These surveys could be seen to reflect a transition point in practice when a culture of evidence based practice was first being introduced; respondents in both studies were educated to both Diploma and Degree level. Caldwell et al (2007) identified overall positive attitudes towards EBP in recent graduates but limited use of this in practice.

A more recent survey of newly qualified allied health professionals (n=154) in Scotland re-examined this topic. They utilised a validated questionnaire to assess the attitudes, knowledge and skills and implementation of EBP, finding above average scores across all six professions and attributed this to the change in education and training (Upton et al, 2012). However, some challenges in integrating EBP such as lack of time and challenges in interpreting statistical data appear intransigent (Mota Da Silva et al 2015). Organisational culture rises to the fore as a key influencer and data suggests physiotherapists prefer to access their peers and specialist networks as sources of information (Schurlock- Evans et al, 2014). Yet the ability to further develop clinical reasoning skills in practice, to a level that includes confident critical appraisal, selection and application of the available evidence

could be seen as crucial to ensure the skills required for an increasingly community base healthcare service (Charles et al, 2018). The continued development of this critical thinking is one of the skills consistently identified as an outcome of master's level education (Stathopolous and Harrison, 2003; Petty, Scholes and Ellis, 2011a,b; Zwanikken et al, 2013).

“Change becomes most apparent when I talk to other clinicians who have not been involved with research or Postgraduate study. It is then I realise just how, and how much, post-graduate study has shaped and enhanced me as a clinician.” (Clinical Specialist Physiotherapist {Parkinsons Disease}, Research Fellow).

Whilst understanding the impact of the transition from Diploma to Degree level qualifications in the UK on quality of care is complex to evaluate, the impact of Masters Education on an individual level is clear. Individuals have been demonstrated to benefit; personally, professionally and intellectually (Perry, Green and Harrison, 2011; Petty, Scholes and Ellis, 2011a,b; Zwanikken et al, 2013). Postgraduate masters students' self- report an impact on the quality of patient care (Zwanikken et al, 2013). This is reflected in our colleagues' opinions.

“ In essence, it has changed pretty much everything I say and everything I do...!”
“Patients are often well informed and curious about their therapy, and will question why they are, or are not, receiving a specific therapy. My academic studies have provided me with the knowledge, skills and confidence to have open and informed conversations about evidence-based physiotherapy and my clinical reasoning... Additionally, writing at degree and post-graduate level has enabled me to write funding applications for specific therapies and equipment for my patients which have had a profound impact on their quality of life and rehabilitation.” (Clinical Specialist Physiotherapist {Parkinsons Disease}, Research Fellow).

Masters programmes aim at increasing an individual's specialist skills, which can have a direct impact on the availability of expertise in practice (Zwanikken et al 2013). Of added benefit, this increase in knowledge and skills has the potential to have a ripple effect as skills are shared with colleagues and implemented in practice. The evidence, however, exposes that this is not always possible with barriers evident within the workplace which limit the

implementation of newly acquired expertise (Stathopolous and Harrison, 2003; Zwanikken et al, 2013). This suggests organisational support at departmental level is crucial to utilise benefits associated with academic progression. Collaborative partnerships across academic and healthcare institutions, which provide support to clinicians who are in a position to influence practice, may therefore be the most meaningful and successful method of improving the quality of patient care (Matus, Walker and Mickan, 2018).

Impact on the development and delivery of patient services

Academization, and in particular the development of post-graduate programmes with their focus on increasing specialisation, has been closely associated with extending professional roles and new emerging models of service delivery (Petty, Scholes and Ellis, 2011a). For example, since 2013 changes in legislation have enabled physiotherapists in the UK to train in non-medical (independent and supplementary) prescribing (National Institute of Clinical Excellence, accessed 2019), people in the UK are able to self-refer to many physiotherapy services (Bury and Stokes, 2013), and physiotherapists are increasingly becoming the first point of contact (CSP, 2018b). Services provided by Advanced Physiotherapy Practitioners have been successfully evaluated (Caine and Wynne, 2016; Allan et al 2017) with new models of service being continuously developed and provided by physiotherapists who have extended their scope of practice. In the neurological field this includes developing key roles in spasticity management, electrical stimulation, and in research and leadership. Of particular note, there is emerging evidence that these physiotherapy led services are at least as effective as those led by medical practitioners (Thompson et al 2017), including within the area of neurology (Ashford et al 2018).

Impact on physiotherapy research capacity and capability

The European Region of the World Confederation for Physical Therapy (ER-WCPT, 2018) identifies the importance of enabling evidence based practice by developing the specific evidence base through systematic research and the promotion of research career pathways. While current data identifying the full extent of research activity among the UK physiotherapy profession is not readily available, Table 1 provides historic data which demonstrates a significant rise in levels of qualification and involvement in research among UK physiotherapists between 1997 and 2008 (subsequent data not available). It is of

interest that this rise aligns with the increased number of clinical specialists within a field such as multiple sclerosis where the number of specialist physiotherapists in the UK rose

| Qualifications | 1999 | 2008 |
|-----------------------------------|-------------------|------|
| Doctorates | 102 | 309 |
| Masters | No available data | 2550 |
| Professors | 23 | 28 |
| *MS Specialists | 40 | 112 |
| Neurological Specialist (>50% MS) | | 83 |

almost threefold from 40 to 112 over this same time period.

Table 1 Estimates of Post-Graduate Qualifications and Engagement in Research for Physiotherapists in the United Kingdom

Source: Chartered Society of Physiotherapy [Rankin], (2008)

This trend in terms of building research capacity and capability is encouraging, nevertheless the number of physiotherapists with research doctorates remains only a small proportion of registered physiotherapists in the UK. Table 1 shows that, based on an estimated 35,000 physios registered at the time, only 309 had a doctorate and 477 were registered on the CSP Database of researchers. Of those registered on this database, 136 (28%) reported that they were in a post involving research, with 23 (5%) working in a full-time research position. Reassuringly, almost half of those registered (n=202, 42%) had been awarded research grants in the previous five years. Clearly, there is some way to go to ensure research is on a more equal footing with other health professionals, such as medical practitioners, however this trend toward an increasing engagement in post-graduate study and active involvement in clinical research is encouraging.

While a lack of data prevents an up to date portrayal of overall research capacity among physiotherapy in the UK, it is evident from the literature that the volume and quality of research output has clearly improved. For example the number of randomised controlled trials (RCT) related to physiotherapy has increased substantially over the last three decades (ER-WCPT, 2018); 75 (63%) of the 120 RCTs published in the journal "Physiotherapy" from

1967 to 2017, were based in the UK (Kelly, 2018). We postulate that this increase in physiotherapy research may, at least in part, be attributable to the increasing academization of physiotherapy in the UK, which has included the development of clinical academic career pathways for clinicians including physiotherapists.

In 2006, the National Institute for Health Research was founded with the explicit aim of improving “the health and wealth of the nation through research”. Since that time clinical academic pathways for Allied Health Professionals in England have become firmly established (NIHR, 2018a). In 2018 out of 517 personal awards 58 were held by physiotherapists with approximately eight focusing on neurology (NIHR, 2018b). This pathway enables the individual the ability to integrate research and clinical practice roles within a single post, rather than having to choose between the two. Of importance, it provides a clearly defined progression route from internships, masters in clinical research studentships, clinical doctoral research fellowships, clinical lectureships and senior clinical lectureships. In doing so it reinforces the value of the academization of physiotherapy, by supporting individuals to become leading researchers who are focused on undertaking research which is aimed at improving the quality of care delivered. In the words of one of these Fellows:

“In all my academic education I have had the opportunity to undertake my own research project. Undertaking research has been highlighted as essential for improving patient care and developing NHS services. It enables gaps in current services to be identified and addressed, and provides expert clinical practice which can be disseminated to teams within the service which provides patient benefit.”
(Clinical Specialist Physiotherapist {Stroke}), National Health Institute Research Fellow).

Impact on the implementation of research findings into practice

The central tenet for physiotherapy research is to improve the quality of patient care, but this is reliant upon the translation of research findings into practice which is both complex and challenging. This gap between knowing what to do and embedding that in practice is well documented. For example, while we now have evidence to demonstrate that high intensity, repetitive task training is beneficial in promoting upper limb recovery following a stroke (Royal College of Physicians, 2016), a survey (n=322) of UK therapy practice identified that the majority of upper limb exercises were prescribed at low intensity (Connell et al,

2014). It is self-evident that simply equipping clinicians with the basic skills to appraise and interpret the evidence, through the achievement of academic qualifications, alone is not enough. Many implementation models have been developed to try to address these issues, as organisational culture and politics are known to produce significant barriers to knowledge mobilisation (Rowley, 2012). For example co-producing of knowledge within the clinical arena can help to ensure the knowledge gained is grounded in clinical practice, fit for purpose and more readily adopted (Rowley, 2012).

Conclusion

The academization of physiotherapy training has ensured that, over the past few decades physiotherapists in the UK qualify with the core skills required to work within the context of an evidence based healthcare environment. The success of this approach has required a strong alignment between academic education and clinical practice. Increasingly, it has been recognised that research leadership is an important factor for embedding an evidence based culture within the healthcare system.

Considerable strides have been made over recent years, both in the number of UK physiotherapists with a post graduate qualification and those actively engaging in research. However these individuals continue to remain a relatively small proportion of the total number of practicing physiotherapists. It is our opinion that clinical academic co-leadership and shared learning across healthcare organisations and universities plays an important role in further developing the next generation of physiotherapists. Our experience suggests that this approach is fundamental to equipping physiotherapists with the required skills, knowledge, confidence and academic credibility which is necessary for the continued advancement of evidence based physiotherapy practice.

Acknowledgements: We thank Angela Logan (Cornwall Partnership NHS Foundation Trust, England) and Terry Gorst (Northern Devon Healthcare NHS Trust) for their comments which have been integrated into this animated commentary.

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